

# *Canadian Journal of* **PUBLIC HEALTH**

*Revue canadienne d'Hygiène publique*

Volume 52

JULY 1961

THE UNIVERSITY OF MICHIGAN Number 7

JUL 26 1961

PUBLIC HEALTH  
LIBRARY

## **THE MAGNITUDE OF CHRONIC DISEASE IN CANADA**

**K. C. Charron**

## **HUMAN INFECTION BY *BRUCELLA ABORTUS* Strain 19**

**S. J. Revich, A. W. Walker, Hilliard Pivnick**

## **FLUORINE, FLUORIDES AND FLUORIDATION**

**G. Clarke and C. R. Castaldi**

## **AN OUTBREAK OF INFECTIOUS HEPATITIS**

**R. D. P. Eaton**

## **Q. FEVER SERUM ANTIBODIES IN BRITISH COLUMBIA CATTLE**

**Joan M. Tailyour**

*Published Monthly by the*  
**CANADIAN PUBLIC HEALTH ASSOCIATION**  
150 COLLEGE STREET, TORONTO 5

# SCHOOL OF HYGIENE

UNIVERSITY OF TORONTO

## *Graduate Degrees and Diploma Courses in Public Health Subjects*

### GRADUATE DEGREES (M.A., M.A.Sc., and Ph.D.)

Graduate degrees are under the jurisdiction of the School of Graduate Studies. Candidates must be well prepared academically and considerable emphasis is placed on research. Work for the M.A. and Ph.D. degrees can be taken in the School of Hygiene in microbiology, nutrition, public health, and parasitology, as well as in sanitary engineering for the M.A.Sc.

### DIPLOMA COURSES

*Diploma in Public Health.* This course provides instruction for physicians entering public health as Medical Officers of Health or in related positions.

*Diploma in Industrial Health.* This course provides instruction for physicians entering industrial health, as full-time or part-time medical officers in plants or industrial organizations.

*Diploma in Hospital Administration.* This course provides instruction for physicians and other university graduates entering hospital administration.

*Diploma in Veterinary Public Health.* This course provides instruction for veterinarians entering public health.

*Diploma in Dental Public Health.* This course provides instruction for dentists entering public health.

*Diploma in Bacteriology.* This course provides instruction for physicians and other university graduates in medical bacteriology and virology, immunology, sanitary bacteriology, mycology, parasitology, and statistical methods.

*Diploma in Nutrition.* This course provides instruction for physicians and other university graduates in basic and applied nutrition, anthropology, sociology, statistical methods, and public health administration.

*Certificate in Public Health.* Instruction is offered to university graduates in general public health or specialized fields not covered by courses listed above.

*Certificate in Public Health (with specialization in Health Education).* This course provides instruction for physicians and other university graduates in principles and practices of health education, anthropology, social psychology, educational psychology, elementary statistics, and public health administration.

### SPECIAL STUDENTS

Graduates, with acceptable experience, may apply for registration as Special Students to take one or more subjects.

### DURATION OF COURSES

All diploma and certificate courses are of 32 weeks' duration, except the Dip.H.A., which extends over two years. Graduate degree programmes usually last for 1-2 years for the M.A. or M.A.Sc., and at least 3 years for the Ph.D.

Courses commence in early September of each year.

### RECOGNITION BY ROYAL COLLEGE

A year of attendance, provided a Diploma is obtained, satisfies part of the requirements for the Certification or Fellowship programmes of the Royal College of Physicians and Surgeons of Canada in the approved medical specialties.

### BURSARY ASSISTANCE AND FELLOWSHIPS

Bursary assistance may be available to candidates approved by Provincial Departments of Health. Overseas candidates should consult their government.

**FOR FURTHER INFORMATION** write to: Dr. A. J. Rhodes, Director, School of Hygiene, University of Toronto, Toronto 5, Ontario.

of  
t-  
r,





# *Canadian Journal of* **PUBLIC HEALTH**

VOLUME 52

JULY 1961

NUMBER 7

## **The Magnitude of Chronic Disease in Canada<sup>1</sup>**

K. C. CHARRON,<sup>2</sup> M.D.

**T**HERE is no doubt that chronic disease is responsible for some of the greatest and most complex problems facing health workers in Canada today. A study of morbidity and mortality statistics indicates that while many acute conditions have bowed to medical progress, chronic disease has not been as amenable to prevention and treatment. Heart disease, neoplasms, disability following accidents, cerebrovascular conditions, arthritis and the like, all exact a heavy toll in human suffering, and place a substantial burden on our health resources. The prevention and successful treatment of chronic disease is the great health challenge of the future.

This does not mean that progress has not been made, nor does it mean that this progress has not been substantial. Diabetes, syphilis, pernicious anaemia, nutritional deficiencies and many other conditions leading to chronic illness have been largely controlled, and poliomyelitis is being added to this list. Modern methods of therapy and rehabilitation can and do work miracles in minimizing the effects of chronic illness. However, it must be admitted that in the past, chronic diseases did not receive the attention they deserved and a careful reappraisal is necessary.

### **BASIC TERMINOLOGY**

In order to study the magnitude of the problem, it is necessary to define certain basic terms. These terms were carefully worked out by the Commission on Chronic Illness in the United States, and there would seem to be an advantage in a common acceptance of terms in order to establish comparability between situations and programs. The following terms are pertinent to any study:

<sup>1</sup>Presented at the Fourth Annual Refresher Course in Public Health held in the School of Hygiene, University of Toronto, February 6-8, 1961.

<sup>2</sup>Director of Health Services, Department of National Health and Welfare, Ottawa, Ont.

*Chronic Disease* comprises all impairments or deviations from normal which have one or more of the following characteristics:

- Are permanent
- Leave residual disability
- Are caused by nonreversible pathological alteration
- Require special training of the patient for rehabilitation
- May be expected to require a long period of supervision, observation or care.

*Primary Prevention* means averting the occurrence of disease.

*Secondary Prevention* means halting the progression of a disease from its early unrecognized stage to a more severe one and preventing complications or sequelae of disease.

*Long-term Patients* are persons suffering from chronic disease or impairments who require a prolonged period of care, that is, who are likely to need or who have received care for a continuous period of at least 30 days in a general hospital, or care for a continuous period of more than three months in another institution or at home, such care to include medical supervision and/or assistance in achieving a higher level of self-care and independence.

In addition to the foregoing, certain other terms will need to be defined depending on the nature of the study. For example, what is meant by a *long-term patient care facility*, what is a *nursing home*, what constitutes a *home care program*, and so forth. It is apparent when one looks at programs which have developed across the country that there is considerable variation in the interpretation placed on many of these and other terms. Furthermore, it seems unlikely that complete uniformity could be achieved, and in fact, this would be undesirable as the situation and organization of services varies from province to province. However, there would be an advantage in achieving a basic understanding on terminology which would permit comparison and appraisal in assessing our needs and resources and in translating these to progressive programs for the control of chronic illness in Canada.

#### POPULATION TRENDS

While a preponderance of cases suffering from long-term illness are in the older age group, it must be remembered that chronic illness affects all ages. Total and age specific trends in population are useful in determining the magnitude of chronic disease and these figures will become more meaningful as our knowledge and statistical information concerning incidence and severity, as related to these aspects, are improved.

It is estimated that Canada's population in 1961 will exceed 18,400,000 and that in 1971 it will be about 23,480,000. This represents a population increase in the ten-year period of about 5,000,000 people.

In any population projection, it is necessary to estimate trends in three basic areas, namely age specific mortality rates, age specific fertility rates, and the rate of net migration. Crude death rates in Canada have been declining steadily and this decline has been faster for females than for males. This sex differential in mortality rates is reflected in the life expectancy for males and females and for 1955-57 the life expectancy at birth for males in Canada was 67.6 years

and for females 72.9. Our crude death rate is one of the lowest in the world but as far as infant mortality is concerned, Canada has not yet reached the levels of countries such as Sweden, The Netherlands, New Zealand, and the United Kingdom. Canada's fertility rate has shown a rapid increase in the post-war period. Net migration has also contributed to total population. Both net migration and the fertility rate affect the age distribution of the population. For example, it is commonly assumed that the proportion of our population aged 65 and over, is increasing. However, mainly due to migration and to some extent to the increased fertility rate, the estimates for the 20-year period 1951-1971 show no change in the proportion in the age group 65 and over. The percentage of the population in this age group during this period is estimated to be about 7.8%. This means that in 1961, there are 1,435,000 persons 65 years of age and over and that in 1971, it is estimated, the figure will increase to about 1,845,000.

Another factor that needs to be considered when age is used as a yardstick in estimating the magnitude of chronic disease, is whether the arbitrary age of 65 and over is the most suitable for this purpose. Many students of the problem maintain that the figure is too high and certainly this is the case when consideration is being given to primary or secondary prevention.

### **Selected Information of Importance in Establishing the Magnitude**

#### **1. THE CANADIAN SICKNESS SURVEY**

The Canadian Sickness Survey of 1950-51 was designed to obtain a broad picture of health problems and services in Canada with additional information being obtained on social and economic factors. There were three basic fields of enquiry; ill health, health care, and expenditures on health care. The final report, entitled "Illness and Health Care in Canada" was prepared jointly by the Department of National Health and Welfare and the Dominion Bureau of Statistics, and was released recently. This document contains a wealth of information and those interested in illness and health care in Canada would be well advised to have it available for future reference.

In order to discuss pertinent information in the report as it relates to chronic illness, there must be an understanding of certain definitions as applied to this study:

*Illness* is defined as a disturbance in the state of health of an individual reported by the informant in the form of a diagnosis, a group of related symptoms or a single symptom. They include injuries and confinements as well as diagnoses of disease and undiagnosed symptoms.

*Diagnostic Groups.* The diagnostic groups in this report are derived from the International Classification of Diseases, Injuries and Causes of Death (6th Revision, 1948).

*Disability Period.* A disability period is a series of 1 to 365 consecutive days throughout which time a person was reported as continuously away from his usual activity or occupation. It includes all days from the day the person discontinued his usual activity until the day such activities were resumed.

*Population.* The survey was carried out in 1950-51 and the population for

Canada used in the study was 13,539,000. By 1961 the population had increased by about 5,000,000 persons or 37%.

These definitions will now be used to interpret some of the data in the report.

(a) *Average Number of Persons Sick on Any Day by*

*Diagnostic Classification*

*Neoplasms.* It was estimated that approximately 36,000 individuals were ill on any day from neoplastic diseases and of these about 10,000 were unable to engage in usual activity or occupation. The average number of days of disabling illness from neoplasms is 55.4.

*Vascular lesions, epilepsy, and other diseases of the brain and spinal cord* resulted in 31,500 persons being ill on any one day with over 20,000 of these suffering from disabling illness.

*Diseases of the heart and hypertensive disease* caused illness to 149,000 people on a particular day and 36.5 thousand of these were suffering from disabling illness.

*Arthritis* caused illness to 70,000 people on any one day and this resulted in disability of over 16,000 of these individuals.

*Accidents, poisoning and violence* produced illness in over 104,000 individuals and 29,000 of these suffered disability.

(b) *Year-Long Illness*

A year-long sickness could be formed of either one year-long illness or of two or more overlapping or concurrent illnesses, if these illnesses did not leave the affected person free of symptoms during the entire survey year.

Table I indicates that the total number of year-long sicknesses was estimated to be 684,000 for the survey year. This represented one year-long sickness for every 20 persons in the country, and includes both minor and major illness. The table also shows that the age group 65 and over had nearly 25% of all of these sicknesses for a group which represented only 7.8% of the total population. The age group 45 to 64 shows 31.9% of year-long sicknesses for a group representing 17.9% of the total population.

TABLE I—COMPARISON BETWEEN PERCENTAGE DISTRIBUTION OF TOTAL POPULATION AND PERCENTAGE SHARE OF YEAR-LONG SICKNESSES FOR VARIOUS AGE GROUPS

Age group	Per cent of total population	Per cent of year-long-sicknesses	(2) ÷ (1)
	(1)	(2)	
Under 15	30.4	8.1	$\frac{1}{4}$
15-24	15.1	—	—
25-44	28.8	28.7	1
45-64	17.9	31.9	2
65-and over	7.8	24.7	3

## 2. PERMANENT AND TOTAL DISABILITY PROGRAM

The Disability Allowances Program for the permanently and totally disabled was established in Canada in 1955 and all provinces participate. An analysis of this program provides useful information with regard to this category of indi-

vidual. In interpreting the material it must be remembered that there are four factors which affect the case load associated with this program:

1. The program is designed to provide financial assistance for persons 18 years of age and over.
2. The allowance is only paid to individuals who are not patients in an institution for any prolonged period of time.
3. The allowance is subject to a means test.
4. The definition used for permanent and total disability is that an individual must suffer from a major physiological, anatomical or psychological impairment verified by objective medical findings, which is likely to continue indefinitely without substantial improvement and, as a result thereof, such person is severely limited in activities pertaining to normal living.

Despite these limiting factors, information from the program helps with an overall assessment of the magnitude of chronic disease in Canada producing permanent and total disability in the adult, non-institutionalized, population.

In March 1959, over 48,000 individuals were receiving the allowance. For the twelve-month period immediately preceding that date, 11,430 individuals were granted the allowance.

Table II indicates the leading diagnostic groups for persons who qualified for the allowance since its inception, to March 31, 1959:

TABLE II—DISTRIBUTION OF PERSONS ACCORDING TO LEADING DIAGNOSTIC GROUPINGS WHO QUALIFIED FOR ALLOWANCES FOR THE PERMANENTLY AND TOTALLY DISABLED IN CANADA DURING THE PERIOD JANUARY 1, 1955, TO MARCH 31, 1959

Diagnostic Group	Int. List No.	No. of Persons Qualified for Allowance	% Total Persons Who Qualify for Allowance
Mental deficiency	325	12,610	23.9
Epilepsy	353	2,472	4.7
Arteriosclerotic and degenerative heart disease	420	2,440	4.6
Rheumatoid arthritis and allied conditions	722	2,387	4.5
Cerebral paralysis other than spastic infantile paralysis	352	2,069	3.9
Late effects of acute poliomyelitis and other virus diseases	080-096	2,068	3.9
Heart disease not otherwise specified	434	1,919	3.6
Neoplasms	140-239	1,348	2.6
Multiple sclerosis	345	1,316	2.5
Malignant hypertension with heart disease	441	1,271	2.4
Schizophrenia	300	1,122	2.1
Asthma	241	1,016	1.9
Osteoarthritis, arthrosis and allied conditions	723	965	1.8
Cerebral haemorrhage	331	951	1.8
Cerebral embolism and thrombosis	332	936	1.8
Paralysis agitans	350	916	1.7
Respiratory tuberculosis	001	884	1.7
Hypertensive disease	440	869	1.6
Psychoneurotic disorder	310-318	633	1.2
Bronchitis	500-502	594	1.1
Diabetes mellitus	260	590	1.1
Arthritis, unspecified	725	287	0.5
Disease of spinal cord	357	244	0.5
Residual		12,903	24.5
Grand total		52,700	100.0

### 3. GENERAL HOSPITAL BEDS FOR LONG-TERM PATIENTS

This section will not deal with beds in mental institutions or T.B. sanatoria but will be confined to the beds required for the general hospital system.

The existing general hospital care pattern in Canada is organized primarily for the treatment of acute illness rather than for long-term patient care. Some long-term patients occupy beds in almost every general hospital. Special chronic and convalescent hospitals or special units attached to general hospitals have been developed in various provinces for the long-term patient, and the estimated number of beds was 14,267 at the end of 1958. The bed-population ratio increased from 0.5 bed per 1,000 population in 1948 to 0.8 bed per 1,000 in 1958. Beds under construction in 1958 would increase this ratio to 0.9 per 1,000.

Various methods have been established to indicate the number of beds required for the hospitalization of long-term patients. The per capita figure is frequently used and the estimated need, using this technique for calculation, varies from 1 to 2.6 beds per 1,000 of population. Several of our provinces are close to the figure of 1 bed per 1,000 of population and in the case of one province, this number is exceeded. Others suggest that as the vast majority of such beds are needed for the care of elderly people, it would be more accurate to express the need for such beds in terms of population of 65 or over. Using this method of calculation, the need has been expressed as 28 to 32 beds per 1,000 of this population. This formula results in a bed requirement for long-term patient care in Canada—based on the 1961 population—of about 33,000 beds, a figure which closely approximates the number of beds required applying the beds per thousand of population formula, when a level of 2 beds per 1,000 is used.

The volume of service required by the population is used also as a yardstick to determine hospital bed requirements. However, these and other figures should only be used as a guide, and I would suggest that a careful appraisal precede any extensive development in providing additional beds for long-term patients.

### 4. CHRONIC DISEASES OF PARTICULAR SIGNIFICANCE TO PUBLIC HEALTH

After a great deal of study and discussion a Committee within the Department of National Health and Welfare listed the following as the chronic diseases of particular significance to public health: tuberculosis, malignant neoplasms, diabetes mellitus, mental and personality disorders, mental deficiency, vascular lesions of the central nervous system, other disorders of the central nervous system, blindness, deafness, arteriosclerotic and degenerative heart disease, hypertensive disease, rheumatic heart disease, respiratory disease, chronic (including bronchitis, asthma, allergy), arthritis and rheumatism, congenital malformations, conditions resulting from accidents.

This type of listing can be used to focus attention on particular disease entities and as an indication of the scope of activity that might interest a public health agency specifically charged with chronic disease control.

### GAPS IN INFORMATION ON THE MAGNITUDE OF CHRONIC DISEASE IN CANADA

The material in the previous section gives a broad picture of chronic disease in Canada. Through the permanent and total disability allowances program, hos-

pital insurance arrangements, and the various special agencies operating in the fields of chronic illness, we have at present a somewhat fragmentary picture of the case load of chronic disease under care and treatment in the country. This information does not include persons cared for only by their personal physicians or individuals who have received little or no attention through community services. From the Canadian Sickness Survey we gain a general impression of the scope of chronic disability in the country in terms of persons incapacitated with resulting days of disability. Here, however, we are faced with the limitations for accuracy and understanding of the nature and extent of disability as recognized by families co-operating and participating in this study. It is fairly evident that a more accurate and dynamic picture of the chronic disease problem depends on further involvement and participation of medically trained personnel in the evaluation and the control of this problem.

In order to develop a full-scale program for the prevention and control of chronic disease, it is necessary to develop an adequate background of understanding of the problem as it exists in our communities, provinces, and throughout the country. This involves a knowledge of the various disease entities and other contributions to the over-all case load of chronic disability. One must also be able to assess patients with chronic disease in terms of secondary prevention and their response to treatment and rehabilitation. The implication of environmental factors and socio-economic conditions will also have to be appraised. Except for selected studies, factual information in this detail is not available in Canada and this represents a substantial gap in our knowledge of chronic disease and its effect on the Canadian people.

#### THE IMPACT OF CHRONIC ILLNESS ON THE HOSPITAL INSURANCE AND DIAGNOSTIC SERVICES PROGRAM

The Hospital Insurance and Diagnostic Services Program is now in operation in all provinces and also the Northwest Territories and the Yukon. It is estimated that over 95% of our population is insured for hospital benefits. Practically all of the general hospitals in Canada are participating hospitals, but the plan excludes treatment in mental institutions and T.B. sanatoria.

The program places no limitation on the length of stay in hospital as long as it can be established that there is a medical need for hospitalization. Admission to hospital is based on a medical certificate and the length of stay is determined by the attending physician. It is much more than a fiscal arrangement and emphasis is placed on type of hospital care required for chronic disease; effective utilization of beds; quality of service; and availability of resources.

##### *(a) Types of Hospital Care Required for Chronic Diseases*

Many chronic diseases which have an acute onset are subject to acute exacerbation, or occasionally require remedial treatment similar to that provided for acute illness. This type of hospital care is found in the average general hospital and the treatment of chronic illnesses, when they require this type of service, does not present any particular problem.

The hospital problem which is peculiar to chronic disease is the type of service required for patients who need prolonged hospital treatment. While



many of the basic facilities needed for acute illness will be required for long-term patients, the degree to which they are provided will vary with the type of case admitted to the institution. For example, facilities for surgery will not be required to the same extent as for acute conditions and laboratory arrangements will be modified to provide the essential tests required for chronic disease. Rehabilitation should be emphasized in both acute and chronic care, but occupational therapy may play a greater role in the treatment of the long-term patient. Furthermore, social service will be particularly important because of the long separation of the individual from the family and community. Requirements within a particular hospital will vary with the resources already available in the area and with the role of the particular unit in the over-all program of total health care.

The question of whether facilities for long-term patient care should be separate institutions or wings of general hospitals, remains unresolved. Many authorities argue that these patients should be cared for in a general hospital and that such a hospital should be prepared to provide all levels of hospital service. They insist that this is the only way of ensuring continuity of care. Others are just as definite and state that this type of arrangement leads to the neglect of long-term patients. It seems to me that we in Canada might well adopt a middle of the road course — setting up arrangements which appear to meet best the needs of the particular community and province. Wings of general hospitals may be the answer in some localities, while in others, separate institutions closely allied to general hospitals may be preferred. I have seen examples of successful programs in which both methods are used, either alone or in combination.

The status of the nursing home as an institution for providing service for chronic illness is also under review in Canada. Several of our provinces have listed a number of nursing homes under the Hospital Insurance and Diagnostic Services Agreement as participating institutions on a temporary basis. The reason for this temporary listing is to provide time for a careful analysis of how this type of institution fits into the institutional and community pattern for personal health care.

In addition to hospitals and nursing homes, considerable thought is being given to the other community resources that are required for the proper care of patients suffering from chronic disease. For example, it has been found that in some communities the domiciliary care facilities are lacking and this creates a bottle-neck producing increasing pressures on hospitals. Home care arrangements are also being studied and attention has been focused on the whole pattern of health and welfare resources in our communities and their application to chronic disease control.

#### *(b) Effective Utilization of Hospital Beds Provided for Long-Term Care*

The effective utilization of hospital beds for long-term care is a matter of the greatest concern in the present and future development of a hospital program in Canada. Everyone agrees that an individual should be able to obtain hospital care when such a service is required. On the other hand, most people support, in principle, the idea that hospital resources should be refused to persons not in need of that level of care. However, it has been found that regardless of how

adamant an individual is concerning this philosophy, when an occasion arises where he or she is personally involved, and a relative or friend would find it more convenient to use hospital facilities, these principles are forgotten and pressure is brought to bear on the physician and hospital concerned.

Effective utilization is not a matter that we can put aside because it is difficult or because it is likely to impinge on sensitive areas of public or professional relations. Its solution — or even partial solution — will have an important bearing on the quality of medical care that we can afford in Canada in the future.

The financial importance of effective utilization is shown by the following example: Let us suppose that the average length of stay in Canadian hospitals increased by one day. This would result in a need for 10% more beds involving both a capital and an operating expense. The capital cost of this 10% increase would approximate \$140,000,000 and the actual operating cost of these additional beds would be in excess of \$40,000,000 per year. These figures demonstrate the importance of "effective" utilization.

*(c) Quality of Care for Long-Term Illness in Hospitals*

In Canada there are examples of excellent programs providing long-term patient-care. However, one must admit that this development has been spotty and that considerable improvement could be achieved in many situations. The question might be asked as to whether we are getting the type and scale of leadership from the medical profession that this major problem deserves. Furthermore, with the emphasis on the participation of other professional disciplines, are these disciplines trained and motivated to participate effectively in the program? I believe that a careful look at the situation across Canada would lead one to the conclusion that a great deal more attention needs to be paid to the care and rehabilitation of long-term patients in our hospitals.

*(d) Availability of Resources*

The development of hospital insurance in Canada stimulated detailed studies on the physical, equipment and personnel resources required for the effective development of the program. The provinces are preparing, at the present time, estimates on their bed requirements and the type of institutional pattern that will be fostered in a given area. Equipment is included in the shareable cost, but here again thought is being given to the quantity and category of equipment required for different types of hospital. Personnel resources are also being carefully scrutinized. All of this should lead to a better and more organized approach to planning for the future.

*(e) Use of Hospital Statistics for the Control of Chronic Disease*

Hospital statistics are being designed for maximum use at all levels. The statistics are developed by the hospital for use by the institution and for community planning. The information is channelled to and screened by the province and forms a valuable tool for provincial development. Finally, it is assembled nationally and used as a guide for a country-wide approach to the problem. This information should be of interest and value not only to those concerned with the hospital program, but also to public health workers. It will provide valuable indicators for essential operational research. When applied specifically

to chronic diseases, it will help to fill a major gap in our information on this subject. It is anticipated that the experience gained in the hospital field will assist with the development of better and more realistic techniques which could be applied to other situations.

#### THE MAGNITUDE OF CHRONIC ILLNESS IN THE MENTAL HEALTH FIELD

An assessment of the magnitude of chronic disease in Canada would be very incomplete without an appraisal of long-term mental illness. The definition for long-term mental illness is substantially different from that applied primarily to physical disability. The actual cutting point between short and long-term mental illness in terms of hospitalization is usually defined as "continuous hospitalization for more than two years". Broad prevalence data for long-term mental illness for the nation as a whole are not available, but selected information on the case load in psychiatric institutions and the permanent and total disability allowances program can be used as an indication of the magnitude of the problem.

If one uses Dominion Bureau of Statistics information on patients in psychiatric institutions it will be seen that patients in these institutions constitute 47% of all patients in Canadian hospitals. Table III shows the number of in-patients continuously in psychiatric institutions for two years or more since admission. Table IV shows the number of patients in these hospitals continuously for five years or more since admission:

TABLE III—NUMBER OF PATIENTS CONTINUOUSLY  
IN PSYCHIATRIC INSTITUTIONS FOR TWO YEARS OR MORE

1955	1956	1957	1958
50,489	51,356	52,785	52,567

TABLE IV—NUMBER OF PATIENTS CONTINUOUSLY  
IN PSYCHIATRIC INSTITUTIONS FOR FIVE YEARS OR MORE

1955	1956	1957	1958
39,548	40,241	41,962	42,191

The startling thing is that whether two years or five years are used in the definition of long-term stay, a major part of the patient population is involved. The figure of 52,567 for 1958, using two years as a criterion of long-term stay, represents 75% of the total patient population.

A diagnostic appraisal of the patients under hospital care on December 21, 1958 shows that schizophrenia accounted for 36.2%, manic depressive psychosis 6.6%, mental deficiency 25.3%, psychoses of senium 6.5%, and all other diagnoses, 25.4%. Age specific in-patient-to-population ratios rise almost continuously with age. Some population ratios for specific diagnostic classes first rise and then fall with increasing age. For schizophrenia the highest population ratios were in the 55-59 year age group for males and in the 60-64 year age group for females, whereas most admissions of schizophrenia occur between the ages of 20 and 40. For mental deficiency the highest population ratios for either sex were in the 15-19-year age group.

If one now refers to Table II listing the leading diagnostic grouping for persons who qualify for allowances for permanent and total disability in Canada, it

will be seen that mental deficiency accounts for 23.9% of the total, schizophrenia 2.1% and psychoneurotic disorder 1.2%. It will be recalled that this program provides allowances for permanently and totally disabled persons who are 18 years of age or over, are not patients in an institution for any prolonged period of time, and qualify under a means test.

Substantial changes are taking place in Canada in the care and rehabilitation of mental illness. The development of the "open-door" philosophy is a major Canadian advance and psychiatric wards in general hospitals are becoming increasingly prominent and effective in the treatment of short term mental illness. Improved methods of therapy, arrangements for aftercare, day and night centers, and better community services, are bringing about a radical alteration in the pattern for the care of mental illness in Canada. This transition may result in arrangements which more closely parallel the system established for other illnesses and this, in turn, could lead to the development of a well-integrated pattern for all personal health care services which would take into account the general and special needs in both physical and mental fields.

#### MEDICAL RESEARCH FOR CHRONIC DISEASE

The key to scientific development is medical research. It is interesting to note that if one looks at the listing of chronic diseases of particular significance to public health it will be seen that voluntary health and welfare associations have been formed which are concerned directly with many of these conditions. This indicates a broad public awareness of the importance of these conditions and the effect that they are having on the population. Many of these agencies such as the Heart Foundation, the National Cancer Institute, and the Arthritis and Rheumatism Society, provide substantial support for medical research. In addition, our universities all have substantial programs for medical research.

Official agencies also participate in this program and at federal level the Department of National Health and Welfare, the Medical Research Council, the Department of Veterans Affairs and the Defence Research Board are all actively engaged in providing aid to medical research. An analysis of the program in the Department of National Health and Welfare shows that in the year 1960-61, \$3,400,000 was allocated from National Health Grants funds for medical research. Of this amount, about \$2,000,000 was devoted to medical research in specified areas of chronic disease. A further analysis demonstrates that all of the conditions listed earlier in this article as being of particular significance to public health receive financial support. This is encouraging as it demonstrates that our scientific workers are beginning to pay more and more attention to the problems of chronic disease.

#### A DEPARTMENTAL STUDY ON CHRONIC DISEASE AND ON HEALTH PROBLEMS OF THE AGED

The Department of National Health and Welfare has been giving a good deal of attention to chronic disease. Some two years ago a committee was established to study chronic disease and the health problems of the aged. In the beginning it was decided that certain areas would need to be defined for investigation as the field is so vast and complex that specific terms of reference are needed in order to establish priorities and show progress. The first decision made by the

committee was that while emphasis would be placed on health problems of the aged, it was recognized that chronic disease affects all ages and the study was therefore not limited to old people. The areas that were chosen for investigation were as follows: (1) Chronic disease of particular significance to public health; (2) Hospitals and nursing homes for long-term patient care; (3) Home care arrangements; (4) Housing, nutrition, and activities; (5) Other health resources required for chronic disease care.

It will be seen from this listing that while the primary emphasis was on the health aspects, these inevitably led to the consideration of associated welfare problems. Indeed, it was necessary not only to give consideration to social factors, but also to take into account financial implications. The study has been a most challenging one and the group has found that there are many gaps in our knowledge and many areas that require further investigation.

Other federal agencies, such as the Departments of Veterans Affairs and Labour, are, also, examining this problem as it relates to their own fields of activity. Several of the provinces have been active and have established programs to evaluate the situation as it pertains to the various regions and communities within the provinces. The time may be ripe for a pooling of knowledge to help with future development.

### Conclusions

There is no doubt that chronic disease is responsible for some of the greatest and most complex problems facing health workers in Canada today. Leadership is essential and should be provided by the medical profession. A chronic disease control program must be a team effort however, and many professional disciplines will be involved. Hospital and public health personnel must be prepared to assume a full and active role. Public health agencies should be prepared to accept a major share of the responsibility for primary and secondary prevention; rehabilitation and follow-up; and possibly for over-all co-ordination. Unless these responsibilities are assumed, lack of participation by public health agencies in chronic disease control programs will lead to a further fragmentation of health service arrangements in Canada. In planning and implementing any chronic disease control program, public participation will be essential to success.

### BIBLIOGRAPHY

1. Chronic Illness in the United States—Commission on Chronic Illness. Vols. 1 to 4. Published for the Commonwealth Fund by the Harvard University Press, Cambridge, Mass.
2. Illness and Health Care in Canada—Canadian Sickness Survey (1950-51). Prepared jointly by the Department of National Health and Welfare and the Dominion Bureau of Statistics. Published by the Queen's Printer and Controller of Stationery, Ottawa, 1960.
3. Charron, K.C.: *Canad. J. Pub. Health*, 1957, 10, 405.
4. Allowances for the Totally and Permanently Disabled, *Medical Statistics*, April 1958–March 1959. Research and Statistics Division, Department of National Health and Welfare, Ottawa, Sept. 1959.
5. Mental Health Statistics—Supplement: Patients in Institutions (1958). Dominion Bureau of Statistics. Published by the Queen's Printer and Controller of Stationery, Ottawa, 1960.

## Human Infection by *Brucella abortus* Strain 19

S. J. REVICH, M.D.,<sup>1</sup> A. W. WALKER, M.D.,<sup>2</sup> and  
HILLIARD PIVNICK, Ph.D.<sup>2</sup>

**T**HIS report presents a case of brucellosis in a human due to the accidental ingestion of *Brucella abortus* strain 19. It is the first report of human infection by mouth with this strain.

Strain 19 is an organism of low virulence which is used as a live vaccine for immunizing calves against virulent *B. abortus*. Such immunization has been the greatest single factor in reducing contagious abortion of cattle and curtailing the incidence of undulant fever in man. Derived from an originally virulent culture in 1923 (1), strain 19 has maintained a low but definite virulence. This virulence is necessary for successful immunization. Less virulent strains do not give lasting immunity while more virulent strains may become established in the udder and secreted in the milk (2, 3, 4, 5). Vaccines prepared with killed organisms have not been satisfactory (6).

The necessary low virulence of S.19 vaccine is determined by injection into guinea pigs in which it causes a transient spleen infection without enlargement and a mean agglutinin titre of about 1:200 four weeks after injection. Within four months after injection the agglutinins disappear (7). In contrast, fully virulent strains of *B. abortus* cause spleen infections which persist for many months with splenic enlargement up to five times normal size and agglutinin titres up to 1:100,000 (8).

Mutation of strain 19 may occur readily but studies have shown the mutations to result in loss of virulence (9). Numerous attempts to increase virulence by repeated passage through guinea pigs (10), pregnant cows (10, 11) and embryonated eggs (12) have failed. It may be concluded that strain 19 may give rise to mutants of less virulence but is unlikely to mutate to a state of increased virulence.

Reported infections of humans by strain 19 are not common although this strain is probably the best known and most widely used of all strains of *Brucella*. Because of its low virulence strain 19 is used in teaching laboratories and by research workers. Also, many people are engaged in the production and testing of vaccines and thousands of veterinarians use it for inoculating calves. To date, however, only 12 cases of human infection with S.19, nine from United States and three from England have been reported (13, 14, 15, 16, 17, 18, 19, 20, 22). All have occurred among veterinarians or others engaged in immunizing calves and all have resulted from accidental splashing of the vaccine in the eyes or

<sup>1</sup>2049 Bayview Avenue, Toronto.

<sup>2</sup>Connaught Medical Research Laboratories, University of Toronto.

TABLE 1—SUMMARY OF CASES OF HUMAN INFECTION WITH *Brucella abortus* STRAIN 19

Case	Reference	Previous history or immunological evidence of brucellosis	Route of infection	Incubation period	Severity	Duration of active disease (days)	Blood* Culture	Lowest titre reported	Highest titre reported
1	Gilman	(17) No	splashed conjunctiva	16 days	severe	11	+	100	51,200
2	Spink & Thompson	(18) Yes	inoculated hand	6 hr.—local	moderate	5	—	80	160
3	"	(18) No	splashed conjunctiva	18 hr.—systematic	severe	15	+	320	2,560
4	Bardenwerper	(19) Yes	inoculated hand	8 days	moderate	2 days with relapse—4 days later	—	60	160
5	Sadusk <i>et al.</i>	(20) No	splashed conjunctiva	12 hr.—systemic	mild	21	+	0	2,560
6	Spink	(16) No	splashed conjunctiva	31 days	mild	X	+	40	160
7	"	(16) Yes	inoculated thumb	11 days	mild	5	—	X	40
8	Dalrymple-Champneys	(15) X	inoculated finger	30 min.—local	severe	42	XX	X	500
9	"	(15) X	inoculated thumb	10 to 12 hr.—systemic	not given	4	—	X	800
10	"	(15) Yes	cut finger	5 weeks	severe	sporadic for several years	X	X	320
11	Coleman	(13) X	inoculated finger	1 day	X	months	—	Low titre	inconclusive
12	"	(13) X	inoculated finger	2 days	X	months	+	inconclusive	
13	This case	No	mouth	X	moderate	5 days	—	80	320

\* + *B. abortus* resembling S.19 isolated from blood.

— No bacteria isolated from blood.

X no information given.

XX no test done.



piercing the skin with a syringe needle or with glass from a broken syringe. A summary of these cases including the one presently reported is given in Table I.

Response to infection with S.19 appears to depend on whether or not the patient has previously been infected with *Brucella*. If a history or immunological evidence of previous exposure is present, the reaction following accidental injection with S.19 is immediate, local, and acute (16) and this stage may be followed by prolonged illness and possibly by death (15). Without previous exposure, the incubation period varies from eight days to about five weeks.

#### REPORT OF A CASE

A 40-year-old male bacteriologist, while pipetting *B. abortus* strain 19 on January 11, 1960, accidentally ingested about 0.1 ml. of a liquid culture containing approximately  $5 \times 10^9$  cells. He rinsed his mouth with water but took no other precautions. Four days later on January 15 he developed malaise but felt well during the next two days. On January 18 he became feverish and had intermittent chills. He remained in bed at home with the fever and chills occurring sporadically. On January 20 a physician (S.J.R.) was called. At this time the patient was acutely ill with an oral temperature of  $104.5^\circ \text{F.}$ , and was sweating profusely. He had a slight dry cough, generalized malaise, diffuse aches and pains particularly in the back and shoulders, and mild, generalized abdominal discomfort. Physical examination revealed the following: the throat was slightly red; scattered, enlarged tender nodes were found in both axillae and in the superclavicular and anterior cervical chains; heart and lungs were normal; the liver was enlarged to approximately three to four finger breadths below the costal margin and was somewhat tender and soft; the spleen was enlarged two to three finger breadths below the left costal margin and was tender and firm; the skin and joints were normal.

The patient was admitted to hospital on January 22 with the provisional diagnosis of brucellosis and given two gm. tetracycline *per os* and 1 gm. streptomycin intramuscularly per day in divided doses. Within 24 hours the temperature fell from  $104^\circ \text{F.}$  to  $97.5^\circ \text{F.}$  and the patient remained afebrile thereafter. Over the succeeding two to three days the generalized aches and pains and sense of malaise disappeared. On the third day in hospital a maculopapular rash with a few vesicles developed, primarily on the abdomen, back and arms. Cultures of the vesicles were taken but were negative. Streptomycin was discontinued after five days and on the eighth day (Jan. 30) the patient was discharged from hospital on one gm. of tetracycline per day for three weeks. At the time of discharge the liver and spleen were still enlarged but slightly smaller than at time of admission. The laboratory findings are summarized in Table II.

During the four weeks following discharge from the hospital this man was seen as an outpatient once weekly. During this time there was a gradual diminution in the size of the liver and spleen. The lymphadenopathy gradually decreased although several new nodes appeared at intervals in the axillae and cervical areas. During his convalescence he remained in good spirits and felt physically well. At the time of final discharge the spleen was no longer palpable, the liver was still one finger breadth below the right costal margin and there was no significant lymphadenopathy.



### Discussion

The case described in this report is not unusual, from the clinical standpoint, for an infection with *Brucella abortus*. It is interesting however, in that it is the first reported case of infection by mouth with this particular strain.

Although *B. abortus* was not recovered from the blood (see Table II) this is not unusual. McCullough (21) has stated, "Many hospital laboratories fail to recover the organism from patients with brucellosis. Indeed, the majority have never succeeded in once isolating a *Brucella*." Even with the absence of cultural proof the case meets other criteria which McCullough feels are collectively adequate, viz., a demonstrable fever; an adequate exposure history; and a high or rising agglutination titre. Spink (14) also has stated that *Brucella* organisms are not isolated from a large percentage of patients suffering from brucellosis.

Because of the paucity of reports concerning infection with *B. abortus* S.19 it may be thought that very few cases occur. This appears to be incorrect. Conversation with veterinarians has shown that accidental infections with this strain are not uncommon. Indeed, two cases have come to our attention during 1960. One was reported in a newspaper, the *Toronto Daily Star*, the other in *Modern Veterinary Practice* (22). In view of this information, it seems desirable that strain 19 should be considered as a pathogen worthy of attention and that people handling this organism should be informed that it is capable of causing brucellosis.

### Summary

A 40-year-old male infected by mouth with *Brucella abortus* strain 19 presented an illness characterized by fever, chills, and malaise associated with generalized lymphadenopathy, enlargement of the spleen and liver, and involvement of the respiratory tract, kidney and skin.

### REFERENCES

1. Graves, R. R.: J.A.V.M.A., 1943, 102: 193.
2. Cotton, W. E.: XIIth International Veterinary Congress, 1934, 1: 286.
3. Cotton, W. E., Buck, J. M. and Smith, H. E.: J. Agric. Res., 1933, 46: 291.
4. Cotton, W. E., Buck, J. M. and Smith, H. E.: J. Agric. Res., 1933, 46: 315.
5. Cotton, W. E., Buck, J. M. and Smith, H. E.: J.A.V.M.A., 1934, 85: 232.
6. Gwatkin, R.: J. Infect. Dis. 1931, 48: 381.
7. Pivnick, H. and Crawley, J.: Unpublished data.
8. Torrey, J. P. and Hallman, E. T.: J.A.V.M.A., 1930, 76: 7.
9. Mingle, C. K. and Manthei, C. A.: Am. J. Vet. Res., 1941, 2: 181.
10. McEwen, A. D.: The Vet. Rec., 1940, 52: 97.
11. Mingle, C. K., Manthei, C. A. and Jasmin, B. S.: J.A.V.M.A., 1941, 99: 203.
12. Metzger, H. J. and Stokes, F. R.: Am. J. Vet. Res., 1941, 2: 178.
13. Coleman, M. B.: Ann. Rep., Div. of Lab. and Res., N.Y. State Dept. Health, 1945: 51.
14. Spink, W. W.: The Nature of Brucellosis. Univ. Minnesota Press, 1956: 464 pp.
15. Dalrymple-Champneys, W.: W.H.O. Expert Advisory Panel on Brucellosis. No. 204, 1960.
16. Spink, W. W.: Ann. Int. Med., 1957, 47: 861.
17. Gilman, H. L.: Cornell Vet., 1944, 34: 193.
18. Spink, W. W. and Thompson, H.: J.A.M.A., 1953, 153: 1162.
19. Bardenwerper, H. W.: J.A.M.A., 1954, 155: 970.
20. Sadusk, J., Browne, A. S. and Born, J. L.: J.A.M.A., 1957, 164: 1325.
21. McCullough, N. B.: Brucellosis. Am. Assoc. Adv. Sci., 1950: 116.
22. Anonymous: Mod. Vet. Pract., 1960, 41: 57.

## Fluorine, Fluorides and Fluoridation in Alberta

G. CLARKE,<sup>1</sup> B.Sc., D.D.S. and C. R. CASTALDI,<sup>2</sup> D.D.S., M.S.D.

ALBERTA lags behind most of the other provinces in Canada in instituting fluoridation as a public health measure for preventing tooth decay although the University of Alberta was the first institution in Canada to carry out significant research on this subject. The discovery that fluorine in water could prevent dental caries was first made in 1931 by research workers in the United States and as early as 1935 the travelling public health clinic in Alberta reported opaque white or mild mottling of teeth in the Grassy Lake area. An extensive survey of the relationship of the fluorine content of water and mottling of teeth was later carried out jointly by the Departments of Chemistry and Dentistry of the University of Alberta in conjunction with the Provincial Department of Public Health and the Provincial Laboratory.

The principal participants in this study were the Deputy Minister, Dr. M. R. Bow, and Dr. O. J. Walker, Professor of Chemistry at the University of Alberta. These men had collaborated previously on a study of the iodine content of soil and water as related to endemic goitre in Alberta. Beginning in 1937, Walker and his co-workers published the first in a series of scientific papers on the subject of fluorine and mottling of tooth enamel and proved that in Alberta fluorine content of the water was related to mild mottling of teeth (3). In general, high fluorine samples were usually found in wells over 80 feet deep although in the Lethbridge area samples of over 1 ppm. were found in shallow wells and springs.

Subsequent papers by these workers in 1937 and 1939 dealt with refinements in the measuring of small amounts of fluorine in the water and removal of excess fluorine (4, 5).

In 1942 Dr. H. R. MacLean who was representing Alberta at the first meeting of the newly formed Associate Committee on Dental Research of the National Research Council introduced the subject of fluoridation. In the discussion that followed it was pointed out that there was need for controlled clinical studies in which fluorides would be added to deficient water to determine whether the reduction in tooth decay would be the same as when fluorides occurred naturally. However, funds could not be provided by the National Research Council at the time to support clinical research of this nature.

It appears that Alberta lost the lead at this stage. It remained for Dr. W. L. Hutton, Medical Officer of Health in Brant County, Ontario, with Dr. H. K. Brown, Dental Consultant, Department of National Health and Welfare, and

<sup>1</sup>Practising Dentist, Edmonton, Alberta.

<sup>2</sup>Professor of Pedodontics, Faculty of Dentistry, University of Alberta, Edmonton, Alberta.

several members of the Faculty of Dentistry of the University of Toronto to take the lead in 1945. In 1950, Dr. O. J. Walker reported to Dr. J. Little, Medical Officer of Health of Edmonton, that samples of Edmonton's water supply varied between .05 and .02 ppm. fluoride, the higher values being obtained during the winter when the water level in the river was lowest.

Following publication of the study of the results of the first five years of fluoridation in Brantford, Ontario, the Board of Health in Edmonton on the advice of the Edmonton Dental Society recommended to the City Council that they proceed with fluoridation and the Council concurred. There were, however, no regulations in Alberta's Public Health Act governing the technical and legal aspects of instituting fluoridation. On the advice of the Executive Council the Lieutenant-Governor in 1952 ordered that an investigation of all aspects of fluoridation be carried out and a report made by the Research Council of Alberta. A study was made and the Committee gave its unqualified endorsement to the principle of fluoridation. The report was discussed at the 1955 session of the Legislative Assembly and was tabled. In 1956 an amendment to the Public Health Act was passed which stated that before a community could fluoridate, a plebiscite must be held, with the measure approved by two-thirds of the voters. In 1958, a further amendment to the Act was made to the effect that there must be a two year waiting period between successive fluoridation plebiscites. During 1960 there was indication of dissatisfaction with the law of the two-thirds majority vote. The town of Hinton introduced a motion at the fall meeting of the Union of Alberta Municipalities urging the provincial government to amend the present fluoridation legislation to permit passage by a straight majority vote. The motion was passed and a resolution to this effect was forwarded to the provincial government. Endorsement of this resolution was passed by the Local Health Unit Board of the province.

In 1959, a plebiscite was held in Edmonton and just failed to gain the necessary majority, the vote being 64.6% in favour. The City Council authorized a second plebiscite to be held in October. During the summer months an intensive anti-fluoridation campaign was conducted by those opposed to the measure, with the result that the "pro" vote dropped to 55.7%. A plebiscite was held in Calgary in 1957 with 51% voting in favour of fluoridation.

#### PRESENT STATUS

During the spring of 1960 the authors sent a letter to all medical officers of health in the province requesting information about the number of community water supplies and wells that had been tested for fluoride content since such information is needed when fluoride is prescribed on an individual basis. Replies occasionally included results of dental health surveys. Voting results of plebiscites were also requested and prominent citizens were asked to assess "pro" and "anti" fluoridation activity wherever plebiscites were held. The following reports were received.

##### *Athabasca Health Unit*

Community water supplies — Lac La Biche 0.7–1.1 ppm. (water supply is from Lac La Biche)

Athabasca 9-1 ppm. F. (Athabasca River)  
Boyle 0-0.7 ppm. F. (two wells)

Private wells tested — none.

#### *Barons Eureka Health Unit*

Community water supplies — Taber 0.6 ppm. F.

Grassy Lake Village 0.4 ppm. F.

Private wells tested — Barons, 2 wells — 3.05 and 1.05 ppm. F.

Nobleford, one well — 2.9 ppm. F.

Grassy Lake, 7 wells — 5 had over 2.7 ppm. F.

Dental health surveys — Dental health was related to fluoride content of water in Taber which was 0.6 ppm. and a number of private wells in the Grassy Lake area which varied in fluoride content between 9.7 and 3.8 ppm.

DMF Rate — Taber, 10.0 (70 children); Grassy Lake, 4.2 (70 children). In Grassy Lake some of the children had mottled teeth. In a few instances this corresponded to the fluoride levels in the water, but in others there was no relationship.

#### *Drumheller Health Unit*

Community water supplies — 6 tested, all below 0.7 ppm. F.

Private wells — 30 tested (report not included)

#### *Edson Health Unit*

Community water supplies — Drayton Valley (wells) 0.6 ppm. F.

Hinton (Athabasca River) — nil

Edson (wells) 0.2 ppm. F.

Wildwood (well) 1.1 ppm. F.

Evansberg (well) 0.44 ppm. F.

Private wells tested — none.

Plebiscites — Hinton, 1960, 60.3% favoured fluoridation.

#### *Foothills Health Unit*

Community water supplies — 8 communities 0.7 ppm. F. or over.

Private wells — 108 wells had 0.7 ppm. F. or over.

#### *Grand Prairie Health Unit*

Community water supplies — Spirit River, over 9.7 ppm. F.

Private wells — 10 wells over 9.7 ppm. F.

Plebiscites — Grand Prairie voted in favour of fluoridation by more than 66% and fluoridation has been instituted. A local service club supported fluoridation by voting en masse after one of their noon meetings.

#### *Jasper Place Health Unit*

This community purchases water from Edmonton.

Dental health survey — A comprehensive dental survey showed that the dental health of the children was better than reported Canadian averages. However, the dental health is not considered good.

*Leduc Strathcona Health Unit*

Community water supplies — Fort Saskatchewan, 0-0.1 ppm. F.  
Calmar, 0-1.8 ppm. F.  
Suburbia Park, 0.8-2.0 ppm. F.  
Private wells tested — 11 wells over 0.7 ppm. F.

*Lethbridge Health Unit*

Community water supply — 0.2-9.5 ppm. F.  
Plebiscites — In 1959 63% voted against fluoridation.

*Medicine Hat Health Unit*

Community water supply — Many tests have been made but health officer reports great variation in results.

Plebiscites — In 1957 over 50% voted for fluoridation. In 1959 over 60% voted against fluoridation.

*Minburn Vermilion Health Unit*

Community water supplies — 3 over 9.7 ppm. F.  
Private wells — 12 over 0.7 ppm. F.

*Mountview Health Unit*

Community water supplies — Beiseker, 2.9 ppm. F.  
Airdrie, 3.3 ppm. F. Both of these villages have been advised to install apparatus to reduce the F. content to about 1 ppm.  
Didsbury, 1.8-2.2 ppm. F.  
Crossfield, occasionally 0.7 ppm. F.  
Private wells — 32 over 9.7 ppm. F. with some up to 5 ppm. F.  
Plebiscites — Bowness 1960 54.4% voted against fluoridation.

*North Eastern Alberta Health Unit*

Community water supplies — St. Paul, 0 F.  
Bonnyville, 0 F.  
Cold Lake, 0 F.

Private wells — 16 tested, only one over 9.7 ppm. F.

Plebiscites — Cold Lake, 1959, over 66%% voted for fluoridation but as yet fluoridation has not been instituted.

*Peace River Health Unit*

Community water supplies — none over 9.7 ppm. F.

Private wells — none over 0.7 ppm. F.

Plebiscites — Fairview, 1959, 82% voted for fluoridation and fluoridation has been instituted.

*Red Deer Health Unit*

Community water supplies — Red Deer, 0.1 ppm. F.  
Lacombe, 1.1 ppm. F.



Alex, 1.1 ppm. F.

Bowden, 1.1 ppm. F.

Plebiscites — Red Deer, 1957, over 66% voted for fluoridation which has been installed.

Innisfail, 1957, 72% voted for fluoridation which has been installed.

*Stony Plain — Lac St. Anne Health Unit*

Community water supplies — Mayerthorpe, 1.29 ppm. F.

Spruce Grove, 1.1 ppm. F.

Whitecourt School, 1.6 ppm. F.

Private wells — 4 over 0.7 ppm. F.

Plebiscites — none. Several years ago citizens in Mayerthorpe gathered at a public meeting to discuss fluoridation. After "pro" and "anti" arguments had ensued evidence was presented that the water already contained adequate fluoride.

*Sturgeon Health Unit*

Community water supplies — 5 over 9.7 ppm. F.

Private wells — 2 over 0.7 ppm. F.

*Wetoka Health Unit*

Community water supplies — Wetaskiwin, 1-2.2 ppm. F.

Ponoka, 0.3-0.7 ppm. F.

Private wells — 39 over 0.7 ppm. F.

Dental health surveys:

DMF Rate — Wetaskiwin, 3.31 (266 children); Ponoka, 6.88 (108 children). This is a highly significant difference. The Ponoka children with less than the optimum amount of fluoride had more than twice the amount of decay.

The medical officer of health reported that the well used to supply water for a mink farm noted for its prize winning animals contains between 1 and 2 ppm. F.

*Calgary*

Community water supply is very low in fluorides.

Plebiscite — 1957, 51% voted against fluoridation.

Dental health — Several comprehensive dental health surveys have reported dental health to be similar to Canadian averages if not worse.

*Edmonton*

Community water supply — Edmonton (Saskatchewan River), .03-.06 ppm. F. with the higher values during the winter months.

Plebiscites — 1957, 64.6% voted for fluoridation. 1959, 55.7% voted for fluoridation.

*Devon*

Plebiscite — 1959, over 66% voted for fluoridation which has been installed.

*Pro- and Anti-Fluoridation Activity*

Pro- and anti-fluoridation activity in Alberta has followed the same pattern as in other places where plebiscites have been held. Organized dentistry and medicine have consistently gone on record as favouring fluoridation and have urged voters to support the measure. Despite this, so called "pure water" organizations have sprung up in opposition to fluoridation and the usual cries of "poison", "communist plot" and "mass medication" have been heard.

In both Edmonton and Calgary chiropractic associations have publicly opposed fluoridation. In Calgary the recently retired medical officer of health did not support fluoridation in the 1957 plebiscite.

A number of members of the Provincial Legislative Assembly have taken prominent roles in opposition to fluoridation. Although most of these have indicated that they are opposed to fluoridation because it violates individual liberty, several have expounded the "poison" idea over the air and in printed articles.

How successful the anti-fluoridation activity has been is difficult to assess but it would appear that it has been very effective in the cities since in only one, Red Deer, has the necessary two-thirds majority pro vote been obtained. Where second plebiscites have been held the pro vote has always dropped with the biggest reversal being in Medicine Hat where in 1957 the vote was over 50% in favour while in 1959 the vote was over 60% against fluoridation.

Where anti-fluoridation activity has been minimal and local community action sufficiently aroused the pro vote has been high. A good example of this is reported from Fairview where the vote was 92% in favour.

An example of how such action can be undermined can be seen from the Hinton plebiscite. For several months prior to the voting a well organized fluoridation education campaign was conducted. All the physicians and the local dentist in this community wrote whole-page articles in the town newspaper emphasizing the effectiveness and safety factor. The mayor, a pharmacist, urged the citizens to support the measure. Very little anti-fluoridation activity was evident until a few days prior to the voting when anti literature published by the Canadian Intelligence Service printed in Flesherton, Ontario was delivered to every household. Correspondents from Hinton have reported that following this a number of citizens who had previously indicated that they would support fluoridation in the plebiscite voiced skepticism. The vote was 60.3% in favour.

In Edmonton the 1959 plebiscite just failed to gain the necessary majority, the vote being 64.6% in favour. The second plebiscite was held in October. During the summer months a weekly educational broadcast on fluoridation was presented over one of the Edmonton radio stations. In the opinion of the radio station staff, the listener audience was not large. In the month preceding the vote in the fall the pro and anti activity increased considerably. A lay group in favour of fluoridation was formed with several dentists as members of the education committee. Seventeen Home and School Associations and various service clubs wrote to the lay organization requesting speakers. It became evident after several such speaking engagements that the same two or three persons opposed to fluoridation attended these meetings for the purpose of raising the "poison" idea during question and answer periods.

Newspapers gave the subject of fluoridation considerable space and letters

to the editor on the subject were often printed. The editorials of both newspapers strongly endorsed fluoridation. The "Pure Water Association" opposing fluoridation was successful in raising funds for promotional activities. A few days before the voting day two anti pamphlets were distributed to every household in the city. One of these pamphlets was a yellow "scare sheet" on which was depicted the skull and cross bones and a long list of anti-fluoridation statements such as "mass medication" and "poison". The pro vote dropped from 64.6% in the spring to 55.7% in the fall referendum.

### Summary

The history of fluoridation and related events in Alberta is reviewed.

At the present time 29 communities in Alberta are known to have water supplies containing at least 0.7 ppm. natural fluoride.

Fourteen fluoridation plebiscites have been held. In 10 of these over 50% of the voters favoured fluoridation, but the necessary 66% pro vote was obtained only six times. Over 60% was obtained eight times.

### REFERENCES

1. Smith, M. C., Lantz, E. M., and Smith H. V.: *Science*, 1931, 74: 244.
2. Churchill, H. V.: *Ind. Eng. Chemistry*, 1931, 23: 996.
3. Walker, O. J. and Spencer, E. Y.: *Canad. J. Res.*, 1937, 15B: 305.
4. Walker, O. J., Finlay, G. R., and Harris, W. E.: *Canad. J. Res.* 1939, 17B: 308.
5. Walker, O. J., Finlay, G. R.: *Canad. J. Res.*, 1940, 18B: 151.
6. Fluoridation of Public Water Supplies, Fluoridation Committee Research Council of Alberta, Edmonton, Alberta, November 1954.

### ACKNOWLEDGEMENTS

Appreciation is expressed to the Medical Officers of the Health Units for their assistance in the collection of data and to Dr. M. Little, Medical Officer of Health of Edmonton, Dean H. R. MacLean of the Faculty of Dentistry, and Dr. A. Somerville, Deputy Minister of Health, for providing information about the early history of fluoridation in Alberta.

This project has been supported by a National Health Grant.

## ONTARIO PUBLIC HEALTH ASSOCIATION

### ANNUAL MEETING

October 2, 3, 4, 1961

King Edward-Sheraton Hotel

Toronto, Ontario

## An Outbreak of Infectious Hepatitis

R. D. P. EATON,<sup>1</sup> M.B., D.P.H.

**B**EGINNING early in 1958 and continuing for two years, an outbreak of infectious hepatitis occurred in the Kenora area which was notable for its severity and for the fact that its origin in time and place was almost certainly identified.

Geographically, Kenora in northwestern Ontario is flanked to the west by the town of Keewatin (pop. 1,980) and to the north and east borders on the rural township of Jaffray-Melick (pop. 1,800). To the south is the Lake of the Woods.

Sanitary arrangements in the three populated areas are such that three-quarters of the town of Kenora is served by municipal sewer and water. One-fifth is supplied with water by stand pipes or a water truck service but has no sewer and a very small number of townspeople depend on private wells. In Keewatin the great majority of the houses depend on a truck delivery service for water, with a few private wells and lakeshore dwellers with private intake lines. There is no municipal sewer system. Jaffray-Melick, which is a rural district of about 72 square miles, has no water delivery service and no sewer. Water is drawn entirely from lakes or wells on an individual basis.

In all areas where there is no sewer system, many of the better-class homes have private disposal systems which are reasonably well supervised, but many houses of the less well-to-do rely on outdoor privies, chemical closets and other means, and water for drinking and washing is stored indoors in a barrel equipped with a dipper and sometimes a cover.

Early in March 1958, a single case of infectious hepatitis was reported in K.K., a male motor mechanic in his middle thirties. This man lived in the town of Kenora. In his history it was found that a workmate of his (C.B.) who lived in Keewatin, had suffered a similar illness with vomiting, lassitude and jaundice in the last week of January 1958, but this illness had not been notified to the Health Department.

Further, this man, C.B., was found to have spent one night, December 24, at a hotel in Red Lake, a mining town about 100 miles north of Kenora. This case was immediately linked with a water-borne outbreak of infectious hepatitis that had occurred in the last week of January in Red Lake. The Red Lake outbreak, which was still continuing and which had been carefully investigated by Dr. J. Sinclair of the Banting Institute and the writer, had started explosively with the appearance within the course of five or six days of nine cases of infectious hepatitis. The only common factor in these cases was that they all took their drinking water from the same source, which source was heavily polluted by sewage from the hotel. The hotel in which C.B. had stayed for the one night

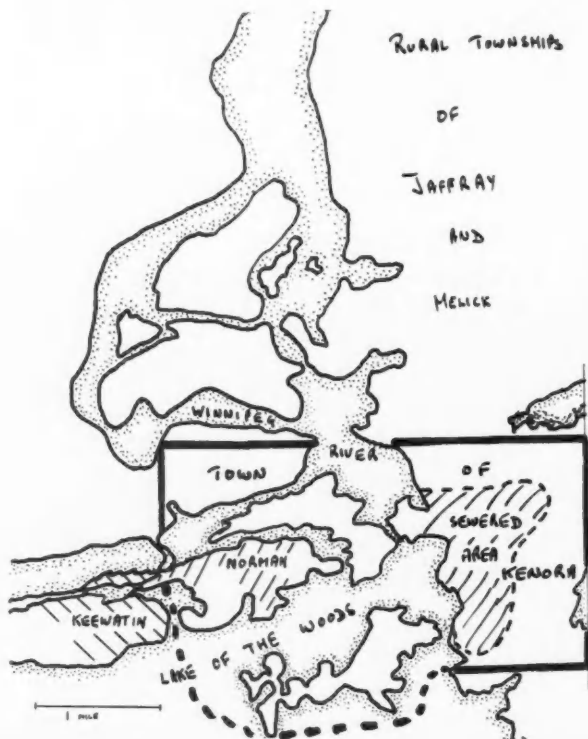
<sup>1</sup>Medical Officer of Health, City of Peterborough, Ontario.

of December 24 was supplied by water from the same source and, in fact, operated the pumping system from which all the first nine patients in the Red Lake outbreak drew their drinking water. It would appear, then, to be possible that C.B. was unwittingly responsible for carrying the disease from Red Lake to the Kenora area.

Following discovery of the two cases in the Kenora area the local practitioners were urged to report all new cases promptly. It is felt that some cases in the next few months were not detected.

The next three months passed with the appearance of two or three cases each month, mostly in Norman, a small subdivision of Kenora at its western boundary. Geographically, this is linked with Keewatin rather than with the parent town, being separated from Kenora proper by a relatively uninhabited area containing two river stretches and a large island (see map). Some of these cases were notified sufficiently early to permit the use of immune serum globulin as a prophylactic but many were discovered too late, some long after recovery, on following up hearsay.

The summer months of July and August went by without notable increase in notifications but at the start of school in September it became obvious that the illness was taking a firm hold among the child population of Keewatin. A



check for causes of absenteeism during September and October showed an increasing incidence of the disease and a few more reports started to come in from the family physicians.

At the end of October it was obvious that a full-scale outbreak was occurring and assistance was requested from the Provincial Department of Health. On November 13, Dr. Sinclair of the Banting Institute and Dr. G. Large from the Provincial Department arrived.

All schools in the district were checked for causes of absenteeism from the beginning of the school year. Hospital records were checked and the doctors were again requested to notify promptly all cases of infectious hepatitis. From these three sources, schools, hospitals and family physicians, a reasonably accurate picture of the build-up of the epidemic through the summer and early fall was obtained. A program of prophylactic immunization of domiciliary contacts was started on November 13, using immune serum globulin (Connaught) in a dosage of 0.02 cc./lb. B.W.

All physicians in the area were seen and told of this program and with something positive to offer in the way of a control measure it became much easier to collect notifications. After the gamma globulin was offered, it was felt that very few cases living within easy range of medical attention were missed.

Records were kept in all cases of age, sex, school attended or occupation and address and similar records of all those given gamma globulin. Those persons who gave a history of a previous attack of infectious hepatitis were not given further protection with the exception of one or two contacts at the latter end of a pregnancy when it was felt that even the least chance of an attack of hepatitis would be particularly undesirable.

All cases were classified as child or adult, the line being drawn at the upper end of the child scale according to whether or not they were still attending school: 246 cases occurred in preschool and school children and 103 in adults.

Records were kept on all contacts given gamma globulin of weight and dosage and person to whom exposed. Each person was asked particularly to report if hepatitis developed subsequently.

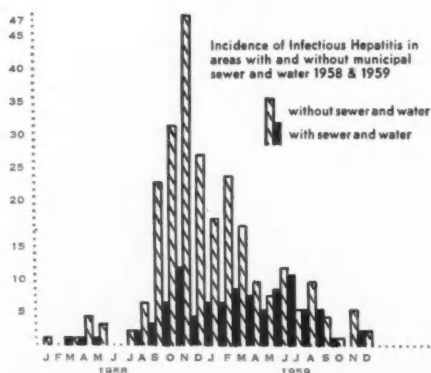
During the period of this outbreak, January 1958 to December 1959, records of 349 cases and 1,024 contacts were collected.

For purposes of distinction as to who should be given protection, an eligible contact was defined as a person who lived, ate and slept in the same household as a patient who had developed jaundice not more than 10 days previously. Any person who did not meet these specifications was excluded. Such a rigid definition was felt to be necessary to avoid the possibility of an overwhelming demand, as for a time there was a great deal of apprehension among the general population.

#### DEVELOPMENT OF THE OUTBREAK

The monthly incidence of cases is presented in Fig. 1. The number of cases occurring in that part of the population living in premises equipped with town sewer and water supply is compared with the remainder of the population living in unsewered premises, plus those with a private disposal plant. The population in each group is roughly comparable in numbers, about 8,100 living in the

FIGURE 1.



sewered area as against 6,200 in the unserved districts. There appears to be evidence of a much faster build-up of cases in the unserved group than the sewerd although this could be explained equally by a later start of the outbreak in the sewerd population and both being cut short by the commencement of the gamma globulin administration in mid-November.

During the whole two-year period under review there occurred 257 cases in the population of the unserved area whose total population was 6,200. Among the population of the served area (8,100) there was a total of 92 cases. The incidence in the first group was then about 4.1% as compared with 1.1% in the second. If the figures for the town of Keewatin are taken on their own there was a total case load of 125 in a population of 1,980 or approximately 6.3%. Such an increased rate could be explained by the fact that the disease was well under way in this town before the gamma globulin program was started (see Table I).

TABLE I—INCIDENCE OF HEPATITIS IN DEFINED GROUPS

Group	Population	Cases I.H.	Incidence %
Total Population	14,300	349	2.44
Residents of Sewered Property	8,100	92	1.14
Residents of Unsewered Property	6,200	257	4.14
Contacts Given Immune Serum Globulin	1,024	5	0.49
Town of Keewatin	1,980	125	6.31

There was no proof of any mode of spread other than by direct contact. Water, milk and food supplies were not incriminated. At one time it was thought that an insanitary water line at the public school in Keewatin might be an underlying cause but it was then found that the incidence in the separate school was even higher and in this school chlorinated water from a satisfactory source was used exclusively. Apart from this, many children were already infected before the start of the school year.



## DISTRIBUTION OF CASES

A group of 278 consecutive cases has been classified by age and sex (Table II). Because of possible inaccuracies, all cases prior to November 1958 were

TABLE II—INCIDENCE BY AGE AND SEX OF INFECTIOUS HEPATITIS CASES

Age	Male	Female
0-4	14	12
5-9	50	42
10-14	26	30
15-19	19	5
20-24	8	13
25-29	7	16
30-34	5	11
35-39	7	4
40+	4	5
TOTAL	140	138

omitted from this table. It will be seen that in both sexes the greatest incidence was in the 5-9 age group. Numbers in both sexes are almost exactly balanced although there is a different distribution curve in the two sexes. The male shows a rise only in the 5-9 age group. The female shows a rise in the 5-9 group and a second but lower hump in the 20-34 region.

## MULTIPLE FAMILY INFECTIONS

In this same group of 278 cases the incidence of multiple infections within a family was noted. These cases involve 231 families of which 200 of the families showed only one case per family (a family being taken as a group of people living together in one house and sharing eating, cooking and washing facilities, regardless of blood relationship). Thirty-one families had more than one case per family and in these there was a total of 78 cases. Of these 78 cases, 12 representing 5 families, lived in sewerer premises while 66, representing the other 26 families, lived in unsewered property. Although these figures are small, they do indicate what seemed very obvious at the time we visited these homes, that the poorer the circumstances of the family (and the less they could afford to be sick) the greater was the number of sick persons in the household.

## EFFECTS OF GAMMA GLOBULIN ADMINISTRATION

The incidence of hepatitis mounted rapidly until November when a peak was reached and a decline started. That this was not just coincidence is suggested by the records of infectious hepatitis occurring in contacts who were given gamma globulin. In the 1,024 contacts given gamma globulin, only six developed hepatitis more than ten days after the date of inoculation. The actual periods of delay are as follows: two developed the disease after 11 days, one after 15, one after 21 and one after 45 days. The remaining case, who was a daughter of the last case, became ill with the disease after nine months. This last case can reasonably be eliminated from calculations as all protective effect would be expected to have disappeared. Hence the incidence rate among the

"protected" population was slightly less than 0.5%. When it is considered that this population was, relatively speaking, experiencing the greatest exposure, then the low rate of 0.5% compared with the overall rate of 1.8% appears highly significant. It would therefore seem that the administration of gamma globulin did play some part, and possibly a very considerable part in the halting of the outbreak.

There was one death during the period—a 43-year-old woman. This patient was a chronic alcoholic who had for years lived on a meager diet supplemented by wine and vitamin pills. Her illness progressed rapidly to complete liver failure.

### Discussion

The data obtained in this study demonstrate convincingly the facilitation of transmission of infectious hepatitis by an insanitary environment. In an area where the conveniences made possible by a municipal sewer and water supply were available in all homes, the incidence rate was only slightly more than one-quarter the rate obtaining in areas where piped water and waterborne sanitation were the exception (1.1% compared with 4.1%).

In the areas not served by sewer it was on the whole found easier to trace a line of communication from one case to the next. This was, to some extent at least, due to an apparent greater degree of inter-relationship between the various families (village intermarriage pattern).

In the town of Kenora, on the other hand, cases most often appeared sporadically and it was rarely possible to define the source of infection.

The difference in age-sex distribution curve in male and female is interesting. The secondary rise in the female in the child-bearing age groups is easy to explain on the basis of the much greater contact with the 5-9-year group in which infection rates are highest.

Throughout the earlier years there is a remarkable similarity of incidence with most cases appearing as might be expected, in the age group when children are least controllable with regard to matters of personal hygiene. The apparently decreased incidence in the female in the 15-19-year age group can only be attributed to an increased awareness of personal hygiene in this group compared with males of the same age.

Coincident with the commencement of gamma globulin prophylaxis, the incidence curve started a downward trend more marked in the areas without sewer and water. That there was a true connection between these two events is supported by an analysis of cases of hepatitis occurring in the most highly exposed group of all, the contacts who were given gamma globulin. In this group the incidence rate was lower than in any other group, or than in the population as a whole (0.5% as compared with 1.8%).

The reason for the apparent greater effectiveness of gamma globulin in the unsewered area is rather difficult to explain. Possibly it might be connected with the observed greater difficulty in tracing the source of infection in those cases living in sewered property. Conceivably, residents of such an area might be more prone to catch the disease away from home (i.e. at school or at work) where hand-washing facilities might not be so readily available or so frequently

used. (Support for this view was given by two groups of cases in adult males where it was possible to trace a line of contacts at work. One group of four occurred among employees of the C.P.R., all but one being associated by riding the same caboose, where sanitary conditions left much to be desired. The fourth had work connections with the other three but not on the caboose. The second group were all paper mill employees with association at work but not at home.) All but one of eight men in these two groups lived in premises with sewer and water conveniences.

Working on this hypothesis it might be supposed that our criteria for the selection of exposed contacts were not the best and should have included work associates as well. This, however, was impracticable. Such a suggestion could explain the apparent relative failure of gamma globulin in the area of better sanitation. The answer might be given by an analysis of figures relating occupation with place of residence and source of disease but the figures are too small.

### Summary

An account is given of an outbreak of 349 cases of infectious hepatitis in a population of 14,300.

These cases are divided according to residence in areas with or without municipal sewer and water. An association is demonstrated between high incidence rate and poor sanitation.

The effect of gamma globulin on the progress of the epidemic is shown.

---

### THE FUTURE OF DENTAL AUXILIARY PERSONNEL

It has been shown, on the basis of projected population estimates, that in addition to our present capacity, a further 133 dentists a year, commencing in 1968, will be required in Canada to maintain a level of service commensurate with a ratio of one dentist to 2,500 population. Two or three more moderate-sized dental schools would be required for this purpose and planning for these schools should be under way right now. However, there is no indication whatever that timely action will be forthcoming from appropriate government sources and grounds for optimism on this score are totally lacking. . . .

By any standard realistic answers are needed to meet the legitimate dental care needs of our growing nation. One method is to broaden the scope of activity of dental auxiliaries. This concept recognizes the valuable services which can be performed by properly and adequately trained auxiliaries, integrated under the supervision or direction of a fully qualified dentist who assumes full responsibility for the services rendered. The economic adaptation of this principle to private dental practice presents a challenging area for imaginative experimentation.

From an Editorial  
*The Canadian Dental Association Journal*  
May 1961, Volume 27, Number 5

## Q. Fever Serum Antibodies in British Columbia Cattle

JOAN M. TAILYOUR<sup>1</sup>

THE causative organism of Q. Fever, *Coxiella burnetii* (1) formerly *Rickettsia burnetii*, was first isolated in two widely separated places. In 1937 Derrick (2) reported an outbreak among abattoir workers in Queensland, Australia, of a disease first known as "abattoir fever". About the same time, Davis and Cox (3) and Parker and Davis (4) at Hamilton, Montana, isolated an infectious agent from ticks and called the disease it produced in animals "Nine Mile Fever". The Australian workers thought "abattoir fever" undesirable as a name for the disease and being unable to find a suitable Greek or Latin derivative, compromised by calling the condition "Q" for query fever (5), a name that has been universally adopted. In man, symptoms are of an atypical pneumonia and the case fatality is low. An outbreak resembling influenza in Athens in 1943 and called "Balkan Grippe" by the Germans had a reported fatality rate of less than 1%; eventually the causative agent was identified as *C. burnetii* (6). In Canada, Q. Fever was reported among abattoir workers in Princeville, Quebec in 1958 (7). Besides workers in abattoirs, human cases occur in foresters, farmers, dairy employees and laboratory staff. From available evidence it is concluded that infection is spread by direct contact with animals or their excreta, by air-borne particles or by contact with arthropods. In natural infections the animals show no apparent symptoms although the cow, sheep and goat excrete the organisms in urine, faeces and milk (6, 8).

Pilot studies in the United States indicated that Q. Fever exists in many parts of the country and it was considered that the disease was of sufficient health significance to justify further work. In 1958, "A Study of the Epidemiology of Q. Fever in the United States" was started by State and Federal agencies under the direction of the U.S. Public Health Service, Rocky Mountain Laboratory at Hamilton, Montana. Dr. Lauri Luoto in Hamilton served as consultant and co-ordinator for this survey of the distribution across the United States of cattle whose sera or milk contained antibodies against *C. burnetii*. In Canada his deputy has been Dr. J. A. McKiel of the Laboratory of Hygiene, Ottawa. The serological method selected for the survey is the capillary tube agglutination test of Luoto (9, 10) with a stained antigen prepared from yolk sacs of eggs injected with *C. burnetii*. This antigen is supplied to all participating agencies.

During the seven month period of November 1959 to June 1960 all bovine sera submitted routinely for Brucellosis testing to the Federal and to the Provincial Animal Pathology Laboratories in Vancouver, B.C. were tested for the presence of Q. Fever antibodies. Antigen was supplied by courtesy of Dr. Lauri

<sup>1</sup>Animal Pathology Laboratories, Health of Animals Division, Canada Department of Agriculture, Branch Laboratory, Pacific Area, Vancouver, B.C.

Present Address: Animal Diseases Research Institute, Hull, Quebec.

Luoto and his agglutination method was used throughout the test (9). Sera from 18,211 animals on 2,595 farms throughout the province of British Columbia have been examined. In addition, pooled milk samples from 325 dairy herds have been tested by the same method (10). All the milk samples were negative, but in the province-wide survey 2.4% of serum samples contained antibodies against *C. burnetii* as shown in Table I. If the geographic distribution of the

TABLE I—RESULTS OF TESTS OF 18,211 BRITISH COLUMBIA CATTLE FOR ANTIBODIES FOR *Coxiella burnetii*

Geographic Area	Cattle Tested			Premises Represented		
	Number Tested	Number Reactors	Percentage of Reactors	Total Number	Number with Reactors	Percentage with Reactors
East Kootenay	1,464	0	0	135	0	0
West Kootenay	197	0	0	10	0	0
North Okanagan	1,534	2	0.1	108	1	0.9
South Okanagan	2,055	14	0.7	190	2	1.5
Nicola	2,765	0	0	64	0	0
Caribou	195	0	0	17	0	0
Northern B.C.	207	0	0	10	0	0
McBride	49	0	0	4	0	0
Pemberton-Schelt	70	0	0	6	0	0
Fraser Valley	6,211	386	6.2	1,228	51	4.1
Vancouver Island	3,464	37	1.0	723	5	0.7
Total	18,211	439	2.4	2,595	59	2.3

reactors is considered, however, it will be seen that the majority, 87.9%, of the reactors came from herds in the Fraser Valley, where we checked approximately 5% of the estimated number of cattle. From this area 6,211 animals were tested; 386 or 6.2% were shown to contain in their sera Q. Fever antibodies. The same district had been tested on a smaller scale in 1954 (11) using guinea pig inoculation technique with negative results. The present figures are interesting in view of the findings reported on milk tests in Ontario. Of the 200 dairy herds tested by Fish and Labzoffsky (12), 7% were positive, while a retest of individual cows in these herds showed 17.9% reactors; the results on the blood serum samples from the animals agreed with those on the milk except in one case.

Table II emphasizes the high percentage of animals with serum antibodies

TABLE II—PERCENTAGE OF CATTLE SHOWING ANTIBODIES FOR *Coxiella Burnetii* IN NINE HERDS\*

Herd Number	Total Number of Animals Bled	Number of Reactors	Percentage of Reactors
1	300	42	14.0
2	56	14	25.0
3	57	16	28.0
4	38	11	28.9
5	78	28	35.8
6	50	18	36.0
7	159	64	40.2
8	190	81	42.6
9	44	19	43.1
Total 9	972	293	30.14

\*All cattle, except calves, on the premises were tested.

against *C. burnetii* in the nine herds for which we have complete figures. Eight of these herds were in the Fraser Valley while the ninth was on Vancouver Island. The nine herds account for 293 of the 439 reactors, with the remaining 146 reactors dispersed on 50 other premises; it will be seen that these nine farms, which constitute only 0.35% of the total farms represented in the survey, harbour 66.7% of the animals with serum antibodies.

### Summary

In connection with "A Study of the Epidemiology of Q. Fever" being carried out by the U.S. Public Health Service, 18,211 cattle on 2,595 farms throughout British Columbia were tested for the presence of serum antibodies against *C. burnetii*. Of the total samples, 2.4% reacted to the Luoto capillary tube agglutination test, while in the Fraser Valley the figure was 6.2% reactors. In nine individual infected herds, in which all animals except calves were tested, the proportion of reactors ranged from 14.0 to 43.1%, median 35.8%. Also tested were pooled milk samples from 325 dairy herds in the province, the results of these were negative.

### ACKNOWLEDGEMENTS

The author wishes to thank Dr. J. C. Bankier for his co-operation in supplying many of the bovine serum samples used in this survey. Thanks are due also to Miss Dale Young and Mrs. Laura Watkins for technical help.

### REFERENCES

1. Philip, C. B.: Pub. Health Rep., 1948, 63: 58.
2. Derrick, E. H.: M.J. Aust., 1937, 2: 281.
3. Davis, G. E. and Cox, H. R.: Pub. Health Rep., 1938, 53: 2259.
4. Parker, R. R. and Davis, G. E.: Pub. Health Rep., 1938, 53: 2267.
5. Dyer, R. E.: Am. J. Pub. Health, 1949, 39: 471.
6. Caminopetros, J.: Q. Fever (Balkan Grippe). Abstracts of Fourth International Congresses on Tropical Medicine and Malaria. Washington, D.C., 1948, May 10-18: 33.
7. Pavlanis, V., Duval, L., Foley, A. R. and L'Heureux, M.: Can. J. Pub. Health, 1958, 49: 520.
8. Huebner, R. J., Jellison, W. L., Beck, M. D., Parker, R. R. and Shepard, C. C.: Pub. Health Rep., 1948, 63: 214.
9. Luoto, Lauri.: J. Immun., 1953, 71: 226.
10. Luoto, L. and Mason, D. M.: J. Immun., 1955, 74: 222.
11. Moynihan, I. W., Tailyour, J. M. and Rice, C. E.: Can. J. Comp. Med., 1955, 19: 272.
12. Fish, N. A. and Labzoffsky, N.A.: Can. J. Pub. Health, 1960, 51: 200.

## NOVA SCOTIA BRANCH CANADIAN PUBLIC HEALTH ASSOCIATION

### ANNUAL MEETING

September 27 and 28, 1961

Isle Royale Hotel, Sydney

# Canadian Journal of Public Health

## EDITORIAL BOARD

J. T. PHAIR, M.D., *Associate Editor*      R. D. DEFRIES, M.D., *Editor*  
ANT. B. VALOIS, M.D., *Associate Editor*  
CYNTHIA PALMER, B.A., *Editorial Assistant*

### *Representatives of Provincial Associations*

B.C. R. H. GOODACRE, B.A.; *Alta.* E. S. ORFORD SMITH, M.B.; *Sask.* E. L. ABBOTT; *Man.* GLADYS ADAMS; *Ont.* M. C. CAHOON, M.D.; *N.B.* G. E. CHIASSON; *N.S.* HAZEL ROLAND; *P.E.I.* BURTON D. HOWATT, M.D.  
*Chairman:* E. J. YOUNG, M.D.      *Secretary:* C. W. SCHWENGER, M.D.

---

## PUBLIC HEALTH AND MEDICAL CARE

THE relationship between formal concern with the public health and the practice of medicine has never been well defined. Public health originated as a service to implement sanitary measures, mainly for the control of physical nuisances, and the carrying out of the restraining measures then in effect for the isolation and quarantine of individuals suffering from, or exposed to, major communicable diseases such as plague, yellow fever, cholera, smallpox, etc. When the control program was ultimately expanded to the point where patients suffering from these or other contagious diseases were taken from their homes to units designed for their isolation and care, the official agency was forced into the position of providing the needed medical care.

At its inception, this form of "state medicine" was not opposed by the medical profession. When these control measures resulted in the quarantine of the family and other contacts in the home and removal of the patient to the municipal hospital, however, there was some resentment by a few physicians who were anxious to continue to treat their well-to-do patients. As a result, there was occasionally reluctance to report cases of communicable disease, such as diphtheria and scarlet fever, when it was thought that they might be cared for in the home.

While the introduction of smallpox vaccine preceded this modest first step into the area of social medicine, it was only when its use was made compulsory that there was a formal recognition of the fact that society was divided into "the haves" and "the have nots", in that the control measures provided for the vaccination by the local authority of those who could not pay, leaving the more prosperous group to the family physicians. When it was possible for the health authorities to lessen the incidence of certain diseases other than smallpox by the general use of the appropriate immunizing agent, the practice of free immunization was viewed in some quarters, not only as an infringement of the privilege of the general practitioner, but as a measure designed to take away his livelihood. In partial defence of such an attitude, it must be remembered that the greater part of the practice of medicine, in contrast to surgery, was at that time devoted to the treatment of communicable diseases. There was typhoid fever in the late



summer, influenza in the autumn, and pneumonia in the winter and spring, with diphtheria, scarlet fever, whooping cough, measles and epidemic meningitis regularly interspersed, and pulmonary tuberculosis, infectious diarrhoea and puerperal sepsis thrown in for good measure.

On the other hand, the gratuitous distribution of biologicals could be interpreted as evidence of a desire on the part of the public health authority to leave the practice of medicine to the physician. This measure was viewed with mixed feelings by the profession as a whole and the privilege was abused by a few.

With the extension of the controlled treatment of those suffering from tuberculosis, syphilis, gonorrhoea and later anterior poliomyelitis, there was an obvious infringement on medical practice. In fairness to the official health agency it must be noted that these measures were adopted only after the older method of "freedom of choice" had failed to protect the public. In the face of the continued significant incidence of these diseases, it was no longer possible to permit people themselves to decide whether or not to take treatment, and by whom it should be given.

Not long ago, and obviously in the public interest, controls were placed on the freedom of the general practitioner in the treatment—both qualitative and quantitative—of industrial accidents. This was followed, not illogically, by the State providing special treatment facilities in this field.

The entry of another branch of Government, namely, welfare, into the physical care field was brought about by the fact that, due to changing economic conditions, there was always a significant proportion of the population without the means to pay for needed care and treatment. This was particularly so for the older age groups. While this condition has always existed, it became more serious as a result of significant advances in the fields of paediatrics and geriatrics. The drop in the infant death rate was accompanied by a corresponding increase in the number of those in the younger age groups who were so handicapped that the demand for their continuous care was beyond anything that was available in the established treatment centers. At the other end of the life span, there was a very substantial increase in longevity, with its associated disabling ills. In both instances, it has been necessary for the State to assume great financial responsibility. The general practitioner was not able to render much help in these special fields of medical care so the trend towards salaried physicians was substantially increased. These men and women have, by and large, rendered good service.

Actually, the State entered the field of treatment only after medical practice demonstrated an inability to cope with these and other special problems. It is to the credit of those who were responsible for setting up these official programs as the need arose, that, on the whole, when the problems that made them necessary were finally overcome, there was an accompanying withdrawal or lessening of official interest.

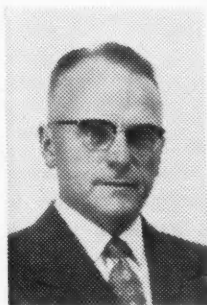
In the postwar years, there was a justifiable reluctance on the part of medical men to return to the conditions of former years, for example, the home care of the seriously ill, to a twenty-four-hour day, and to the casual attitude of many of the public towards payment for services rendered. The general acceptance of a more reasonable approach to practice, however, has added to the cost of the

service, and, in so doing, has made more difficult the problem of ensuring good medical care for all regardless of their ability to pay.

The suggested remedy is some form of medical insurance, providing a service that is acceptable to the donor and to the recipient, and at reasonable cost. Whether the form of insurance adopted is entirely or partially compulsory is not so important as the relationship between the patient and the physician. No plan of this type can sacrifice one party to protect the other. Any scheme that is adopted will not be drawn up to meet the wishes of the profession nor the whims of the public, but will depend largely, if not wholly, upon the state of the national economy.

J. T. P.

### THE ADVISORY EDITORIAL BOARD OF THE JOURNAL



ANT.-B. VALOIS,  
B.A., M.D., D.PH.

The implementing of the recommendations of the Editor of the Journal to the Executive Council at the meeting of the Association in Halifax last year has now been completed. During the year the provincial branches and affiliated associations named representatives to the Advisory Editorial Board, providing for the active participation of the provincial associations in the publishing of the Journal. Through these members papers are received for publication which have been presented at provincial meetings and conferences and a close contact is maintained with the provincial associations.

The appointment of an Associate Editor, resident in Quebec, has now been made. Dr. Ant.-B. Valois of the Department of Health, City of Montreal, is assuming the duties of this office. Dr. Valois is a graduate of the School of Public Health, Johns Hopkins University, and was nominated as a specialist in public health by the Royal College of Physicians and Surgeons in Canada and by Le Collège des médecins et chirurgiens de la province de Québec. He commenced his work in public health in the Department of Health of the City of Montreal in the Division of Maternal and Child Hygiene in 1937; for nine years he was Director of the Division of Vital Statistics. In 1952 he was appointed Director of the Department of Health of the City of Verdun and since 1956 he has been Assistant to the Director of the Department of Health of Montreal. Dr. Valois has had an active interest in academic work, being for the past ten years professor of biometry and biostatistics in the School of Hygiene of the University of Montreal.

Dr. Valois needs no introduction to the members of the Association as he has been an active participant for many years, serving as president of the Vital Statistics Section in 1949 and also as president of the Publicity Committee for the Jubilee Meeting of the Association in Montreal in 1959.

The Editorial Board of the Journal extends the warmest of welcomes to Dr. Valois and the entire membership appreciates this further evidence of the interest of Dr. Valois in the Association's work.

## ANNUAL REPORT OF THE ASSOCIATION

1960-61

## PART II

## REPORT OF THE EDITORIAL BOARD

R. D. DEFRIES, M.D., *Editor*J. T. PHAIR, M.D., *Associate Editor*CYNTHIA PALMER, B.A., *Editorial Assistant**Representatives of Provincial Associations*

B.C. R. H. GOODACRE, B.A.; Alta. E. S. ORFORD SMITH, M.B.; Sask. E. L. ABBOTT; Man. GLADYS ADAMS; Ont. M. C. CAHOON, M.E.D.; N.B. GILLES E. CHIASSEON; N.S. HAZEL ROLAND; P.E.I. BURTON D. HOWATT, M.D.

*Chairman:* E. J. YOUNG, M.D.*Secretary:* C. W. SCHWENGER, M.D.

THE JOURNAL completed during 1960 its 51st volume. Since 1929, the Journal has been owned and published by the Association and the present editor has served in that office. It is gratifying that the Journal is recognized internationally as an important scientific publication in the field of preventive medicine and public health. One of the problems which faces the Journal grows out of this recognition by universities, institutions, and government agencies in many countries.

Many requests for an exchange of publications are being received. The publications offered are seldom published in English and are frequently in fields of medicine other than preventive medicine and public health. To permit of the Journal being known in many of the newer countries the Editorial Board recommends that the Journal be offered without charge to the central health authority of each of the member countries (102 in number) which at present constitute the World Health Organization. Apart from acquainting them with Canada's programs in preventive medicine and public health, such action would contribute to the furtherance of Canadian goodwill.

It is felt, also, that the Journal should be offered to the schools of hygiene in the various countries where postgraduate training in public health is now provided. It is possible that for this project financial support might be obtained from an official or voluntary agency in Canada. If not, it would represent a contribution of the Association to world health. An expression of opinion on the part of the Executive Council would be valued by the Editorial Board.

To mark the Jubilee of the Association a commemorative volume "Federal and Provincial Health Services in Canada" was prepared with the co-operation of the federal and provincial deputy ministers of health and was distributed during the year. An important contribution has been made in bringing together the historical facts relating to the origin and development of each of the provincial departments and the Department of National Health. This volume was very well received and the edition has been exhausted. In publishing this

volume it was felt that the Association might render a valuable service by continuing its publication, suitably revised, at intervals of two to three years. The distribution of the first edition indicates that the volume is meeting a need of postgraduate students, not only in Canada, but in the United States and other countries. The Executive Committee has authorized the preparation of a second edition and it is expected that this will be issued before the end of 1961.

During the past year 68 papers were published in the Journal, 28 of these in public health administration, including communicable disease control, vital statistics, and epidemiology, 9 papers in public health nursing, child and maternal hygiene, and public health education, 17 papers in environmental sanitation, including industrial hygiene and veterinary public health, 5 laboratory papers together with the abstracts of 29 papers presented at the Christmas meeting of the Laboratory Section, 4 papers in mental health, 3 in dental public health, and one in nutrition. There were 24 pages of editorials. Programs of the annual meetings occupied 11 pages and publicity for the Association's annual meeting was presented in 6 pages. The annual report of the Association for 1959 was published serially and occupied 28 pages.

The printing charges for 1960 were \$24,074.62 which includes distribution costs for the Journal. The figure in 1959 was \$22,651.01 which represents an increase of \$1,423.61 for 1960. The average number of copies printed was 3,458 resulting in a cost per volume of \$6.96. In 1959 the average number of copies printed was 3,560 resulting in a cost per volume (twelve issues) of \$6.36. The income from advertising in the Journal was \$9,783.25 for the year with \$902.00 paid in commissions. In 1959 these figures were \$9,197.05 and \$920.26.

Throughout the years the members of the Advisory Editorial Board have generously shared in the work of the Journal by correspondence. To these members the Editor expresses the thanks of the Journal for their unflinching interest and support. With the development of provincial health associations as branches or affiliated associations, the need was felt by them for a closer link with the Journal. It was approved at the last Executive Council meeting that the Advisory Editorial Board be reconstituted and that it consist of representatives from provincial associations. A new Advisory Board has been formed and these representatives have undertaken to send to the Journal reports of the activities of their public health organizations and also to forward scientific papers and addresses which in their opinion would be of value and interest to public health workers throughout Canada. News items relating to the official departments of health are supplied by the provincial correspondents of the Journal. In a few cases these correspondents represent both their provincial organization and the official health department. Dr. E. J. Young serves as Chairman of the Advisory Editorial Board and Dr. C. Schwenger as Secretary.

In reporting for the Journal the Board expresses appreciation of the effective services of Mrs. Cynthia Palmer, B.A. in editing and preparation of the Journal and the University of Toronto Press for their fine printing—a service which extends over 42 years in the life of the Journal.

## REPORT OF THE COMMITTEE ON ACCIDENT PREVENTION

Milton Brown, O.B.E., M.D., B.Sc., D.P.H., F.C.C.P., Chairman  
A. C. McKenzie, B.A., M.P.H., Secretary

THE COMMITTEE has continued to carry out a study of the problem of accidents and the role of public health in reducing mortality and morbidity.

Accidents are a major cause of death and of considerable morbidity. The only body of information available on the latter problem is the sickness survey of 1951. Information is being gathered as to the possibility of obtaining data through the provincial hospital service schemes and other sources. It is hoped that firm recommendations on ways and means of controlling this problem will be made in the near future.

REPORT OF THE COMMITTEE ON THE CERTIFICATION OF  
SANITARY INSPECTORS

A. E. Berry, M.A.Sc., C.E., Ph.D., Toronto, Chairman

A. A. Ball, C.S.I.(C), Prince Albert  
R. Bowering, M.A.Sc., Victoria  
W. H. Burns, C.S.I.(C), Richmond Hill  
O. H. Curtis, M.D., D.P.H., Charlottetown  
R. D. Defries, M.D., D.P.H., Toronto  
J. Gilbert, M.D., D.P.H., Montreal  
H. L. Hogge, B.Sc., Edmonton  
H. O. Hughes, C.S.I.(C), Toronto  
T. J. Lafreniere, P.Eng., Montreal  
H. Malcolmson, M.D., D.P.H., Winnipeg

A. McDermott, M.B., B.Ch., St. John's  
D. McNab, C.S.I.(C), Vancouver  
J. A. Melanson, M.D., D.P.H., Fredericton  
W. Mosley, M.D., C.M., D.P.H., Toronto  
G. W. O. Moss, M.D., D.P.H., Toronto  
A. S. O'Hara, F.R.S.H., Toronto  
W. H. Patterson, C.S.I.(C), Toronto  
L. A. Pequegnat, M.D., D.P.H., Toronto  
J. G. Schaeffer, M.A.Sc., Regina  
G. G. Simms, M.D., D.P.H., Halifax

E. J. Young, M.D., D.P.H., Toronto

## CENTRAL BOARD OF REGISTRATION AND EXAMINATION

Dr. A. E. Berry, Chairman

Dr. R. D. Defries  
Dr. J. Gilbert  
Mr. W. H. Patterson  
Mr. H. O. Hughes

Dr. G. W. O. Moss  
Major A. S. O'Hara  
Dr. L. A. Pequegnat  
Dr. E. J. Young

Dr. W. Mosley, Secretary

ESTABLISHED IN 1935, the Committee on the Certification of Sanitary Inspectors has been charged with the establishing of qualifications and training of sanitary inspectors. It established the secondary school educational requirements for registration for the Certificate in Sanitary Inspection (Canada) and during the years has raised these requirements. The Committee has assisted in the training of sanitary inspectors through the provision of a correspondence course and the furnishing of a manual of instruction.

The C.S.I.(C) has become a recognized qualification and the status of sanitary inspectors has been strengthened. To date, 1,244 candidates have received the Certificate. This is indeed a major contribution to public health in Canada. The past year has recorded further progress in the work of the Committee. Thirty-four candidates were awarded the Certificate.

The Committee has recognized that formal courses of instruction are essential and it is hoped that additional courses to meet the needs of all provinces will be developed. At present, two formal courses are provided, one in the School of Hygiene, University of Montreal, and the second by the Environmental Sanitation Training Centre in Toronto under the direction of the Department of Health of Ontario. Also, a course of instruction extending over a period of nine months has been provided when needed in Manitoba, arranged by the provincial department of health.

The Committee recognizes the great value of refresher courses. In several provinces courses have been provided through departments of health or universities.

At the last annual meeting in Halifax the Executive Council considered the question of a higher qualification for sanitary inspectors who have the C.S.I.(C) and after discussion, directed this Committee to proceed with its consideration of the senior Certificate without delay with a view to its early implementation. The Dominion Council of Health meeting in October 1960 gave approval to the proposed senior certificate. At a January meeting of the Central Board of Registration and Examination, the president of the Canadian Institute of Sanitary Inspectors expressed the thoughts of the Institute in regard to the requirements of the senior Certificate. These were in accordance with the provisions for the Certificate as prepared by the Committee. At the end of this report the main provisions of the draft regulations are presented.

During the year, the Central Board passed the following recommendation in connection with the field training of candidates for the C.S.I.(C), namely:

"that it be a stipulation for field training that a candidate be employed full time in a health unit or health department and receive training under the supervision of a medical officer of health and a qualified sanitary inspector".

An exception to this would be made for members of the Armed Forces.

The following nominations were received from the Canadian Institute of Sanitary Inspectors as members of the Committee, namely, A. A. Ball, C.S.I.(C), Prince Albert, Sask., W. H. Burns, C.S.I.(C), Richmond Hill, Ont., H. O. Hughes, C.S.I.(C), Toronto, D. McNab, C.S.I.(C), Vancouver, B.C., and W. H. Patterson, C.S.I.(C), Toronto, Ont.

The Manual for Sanitary Inspectors has been completely revised and is awaiting publication.

The Committee desires to express its thanks to the members who served as examiners and as members of the various provincial examining boards. A board of three members was appointed to prepare the written papers for examination. These members were Mr. M. Flattery, Winnipeg, Mr. R. Bowering, Victoria, and Dr. J. J. Stanton, Halifax.

The Committee desires to express its thanks to Mr. M. Flattery for marking

the exercises of the students enrolled in the correspondence course. This course is conducted twice yearly and extends over nine and a half months.

#### REGULATIONS FOR THE SENIOR CERTIFICATE

##### *Background*

For several years many sanitary inspectors felt that there was a requirement for a senior certificate for sanitary inspectors who held the C.S.I.(C). In 1960, the Committee on the Certification of Sanitary Inspectors of the Canadian Public Health Association decided that it would be desirable to have a higher or senior certificate and that it would sponsor such a certificate. The Committee gave the following reasons for this decision, namely, "One of the important values of certification of sanitary inspectors has been the raising of standards. The Committee is aware that inspectors lack incentive to improve their qualifications. It is felt that the awarding of a higher Certificate would provide an incentive that is needed. It would have the advantage of encouraging the training of potential supervisors and senior sanitary inspectors and make it easier for health officers to appoint senior officers."

The need for a senior certificate was brought to the attention of the Dominion Council of Health and the proposal for providing a senior Certificate was approved. The Executive Council of the Canadian Public Health Association, at the annual meeting of the Association in June 1960, agreed with the need for the senior certificate and directed its Committee on the Certification of Sanitary Inspectors to proceed with its consideration of the senior certificate without delay and with a view to its early implementation. In January 1961 the president of the Canadian Institute of Sanitary Inspectors at a meeting of the Central Board of the Committee on the Certification of Sanitary Inspectors expressed the thoughts of the Institute regarding the requirements for the senior certificate.

The senior certificate in no way lowers the status of the C.S.I.(C), nor changes the regulations under the various provincial health acts with regard to the basic qualification of the C.S.I.(C).

##### *Requirements*

Candidates who have completed the requirements are granted the *Senior Certificate in Sanitary Inspection (Canada)*, Sr. C.S.I.(C), by the Canadian Public Health Association. This Certificate is a certificate of competency awarded to holders of the C.S.I.(C) who satisfy the requirements.

##### *Eligibility of Applicants*

To be eligible to apply for examination, a candidate must:

1. Be a holder of a C.S.I.(C).
2. Since obtaining his C.S.I.(C) have been continually employed full-time for at least five years immediately prior to writing the senior examination as a sanitary inspector in a public health organization approved for this purpose by the Central Board of the Committee on the Certification of Sanitary Inspectors.



3. Be certified by a medical officer of health or an equivalent health official recognized by the Central Board that he has given satisfactory service and is a suitable person to hold a senior certificate.
4. Conduct a study and write an essay relating to a field of special interest to the inspector. The subject for study is to be approved before commencement and the report accepted on completion by the Central Board of Registration and Examination. If the candidate's essay is accepted, he may proceed with the examination. In the event that it is not satisfactory he will be required to submit another essay.

#### *Filing of Application for Examination*

Examinations are held once each year in June. Applications for registration and for examination must be made on the forms supplied by the Canadian Public Health Association. The application for examination must be made in duplicate and be accompanied by:

Proof of having been awarded C.S.I.(C);

One-third of the examination fee of \$60.00;

Two recent photographs of passport type;

Certificate from a medical officer of health as detailed in preceding paragraph;

Subject selected for special study.

The closing date for the filing of applications is August 1 of the year preceding the examination.

#### *Time of Submission of Essay*

The candidate will submit his essay to the Central Board not later than March 31 of the year in which he takes the examination.

#### *Examinations*

Examinations are conducted by the Committee in June of each year. There is one comprehensive oral examination by an examination board of three members.

Candidates who are eligible, having satisfied the requirements including the acceptance of their essay by the Board, may take the oral examination. In order to pass this examination they are required to obtain at least sixty (60) per cent. Candidates who fail may try the oral examination again not less than one year after their first attempt.

The fee for the examination is \$60.00. The fee for re-examination is \$30.00.

---

*The Report of the Committee on the Certification of Sanitary Inspectors was adopted by the Executive Council at the Annual Meeting in Regina, June 6, 1961, with the amendment that the proposed Regulations for the Senior Certificate be referred back to the Committee for further study and be brought forward again at the next meeting of the Executive Council.*

## News Notes

### National

#### *Royal Commission on Health*

Prime Minister Diefenbaker announced in the House of Commons on June 20 the membership of the Royal Commission on Health which was formed in December 1961 under the chairmanship of Chief Justice Emmett Hall of Saskatchewan. The six members appointed to the Commission were: Mr. Wallace McCutcheon, Toronto, vice-president and general manager of Argus Corporation; Dr. O. J. Firestone, former economic administrator with the Department of Trade and Commerce and now an economic consultant; Dr. C. L. Strachan, London, Ontario, dentist; Dr. David M. Baltzan, Saskatoon, past president of the Saskatchewan Medical Association; Dr. Arthur F. Van Wart, Fredericton, past president of the Canadian Medical Association, and Mrs. Alice Girard, Montreal, past president of the Canadian Nurses' Association.

The Commission is to study Canada's health needs with a view to a possible national health plan.

### Federal

Dr. K. C. Charron, Director of Health Services, Department of National Health and Welfare, returned on May 16 following a ten-week tour of New Zealand and Australia, undertaken for the purpose of studying the hospital and medical care programs of these countries.

Dr. B. Primeau, Chief of the Medical Rehabilitation and Disability Advisory Services Division, Department of National Health and Welfare, was awarded an honorary life membership by the Canadian Red Cross Society, on May 2, in recognition of his work in Morocco for an eight-month period in 1960, as Chief Medical Officer and delegate of the World Health Organization and League of Red Cross Societies.

Mr. Harvey W. Adams, Director of the Information Services Division of the Department of National Health and Welfare, was named national president of the Canadian Public Relations Society at the Thirteenth Annual Conference held at Ste. Adele, P.Q. on May 11.

#### *Medical Planning for Wartime Emergencies:*

The organization of health professional manpower and the provision of medical

supplies for wartime emergencies and the subsequent rehabilitation period were two of the main problems considered by the newly established Emergency Health Services Advisory Committee at its first meeting in Ottawa, on May 29 and 30, under the chairmanship of Dr. G. D. W. Cameron, Deputy Minister of National Health.

The committee is to advise and assist the Minister of National Health and Welfare, the Honourable J. Waldo Monteith, on the provision of assistance to provincial and municipal governments in the way of organization, preparation and operation of medical, nursing, hospital and public health services during an emergency.

This committee replaces the Defence Medical and Dental Services Advisory Board, and will comprise representatives of the Canadian medical, dental, nursing, pharmaceutical and veterinary associations, together with federal medical officers and officers of the Canadian Forces' Medical Services.

### British Columbia

With the co-operation of the Department of Extension and the Department of Continuing Medical Education, an in-service training course for sanitary inspectors was held at University of British Columbia June 15-16. "Engineering Principles for Sanitary Inspectors" was the general theme of the course. Also included were lectures on radiation, statistics, bacteriology, administration, occupational health and public health education.

Tangible recognition of the educational needs of retarded children was seen on May 12, when the Vancouver School Board officially opened Oakridge School, an institution specially designed for this purpose. Enrolment is already close to the maximum of 113, and is made up of children with I.Q.'s ranging between 25 and 50, some of whom have additional disabilities such as cerebral palsy and epilepsy. The services of the Greater Vancouver Metropolitan Health Committee have been extended to the school.

The Victorian Order of Nurses established a "first" in their organization throughout Canada with the appointment to the staff of their Vancouver branch of a male nurse, Mr. Frank Bryant, R.N. Mr. Bryant is a 1956 graduate of St. Paul's Hospital School

of Nursing in Vancouver. His V.O.N. appointment was in response to a request from the Canadian Paraplegic Association.

#### *Staff Changes:*

Dr. W. Sinclair has resigned as director of the Skeena Health Unit at Prince Rupert. He is entering private practice at Port Coquitlam, B.C.

Dr. Ian Findlay has been appointed director of the South Central Health Unit at Kamloops. Formerly director of the Peace River Health Unit, he assumed his new post in June, after completing the diploma course in public health at the University of Toronto. Dr. G. Bonham, who has also completed the course in public health at Toronto, has been appointed director of the Cariboo Health Unit at Prince George. He was formerly assistant director of the Boundary Health Unit at Cloverdale.

#### **Alberta**

A welcome visitor to Edmonton May 29-31 was Dr. W. Harding le Riche, Professor of Public Health at the University of Toronto. Dr. le Riche met with a group of medical officers from the Provincial Department of Public Health and local health services in the Edmonton district for a discussion of the D.P.H. curriculum. He also visited the Department of Social and Preventive Medicine at the University of Alberta, the Sturgeon Health Unit and the City of Edmonton Health Department. An informal dinner was held in his honour at the Hillcrest Country Club under the auspices of the Northern Region of the C.P.H.A. (Alberta Division).

Dr. Elizabeth Hill has returned to the Jasper Place Health Unit after successfully completing the D.P.H. course at the University of Toronto.

Dr. B. P. Harris, formerly of Newfoundland, has been appointed as Medical Officer of Health of the North Eastern Alberta Health Unit. Dr. Harris is a graduate of the University of Cambridge and the School of Hygiene of the University of Toronto.

#### **Manitoba**

Dr. W. M. Sinclair (Bureau of Dental Services) recently completed a course in Public Health at the School of Hygiene, University of Toronto, and has returned to work in Dauphin, Manitoba.

After completing the D.P.H. course at the School of Hygiene, University of Toronto, Dr. W. K. G. Allan has resumed his duties as medical director of the Virden Health

Unit, and Dr. W. Ross has been appointed medical director of the Red River Health Unit with headquarters at Steinbach.

#### **Ontario**

##### *School of Hygiene, University of Toronto*

Announcement has been made by Dr. Claude T. Bissell, President of the University of Toronto, of the resignation of Dr. G. Harvey Agnew, Professor and Head of the Department of Hospital Administration (part-time) to be effective July 1, 1962. The Department of Hospital Administration was established in the School of Hygiene in 1947 through the generous support of the W. K. Kellogg Foundation of Battle Creek, Michigan. Under Dr. Agnew's leadership the Department of Hospital Administration has rendered a most important service, not only in graduate teaching, but in research. During these years Dr. Agnew has served on a part-time basis in order to continue his consulting practice.

Announcement has now been made that Dr. F. B. Roth, Deputy Minister of Public Health, Saskatchewan, has been appointed to succeed Dr. Agnew. Dr. Roth is an alumnus of the School of Hygiene, University of Toronto, and has had a wide experience in health and hospital administration. He will direct the University's program of graduate education and research in the important field of hospital administration. He will also be responsible for developing a wider program of graduate study and research in the organizing and administration of health services.

This new appointment has been made possible by a grant from the W. K. Kellogg Foundation, Battle Creek, Michigan and this further evidence of the interest of the Kellogg Foundation in the work of the Department of Hospital Administration in the School of Hygiene is greatly valued.

#### **New Brunswick**

The Third Atlantic Workshop on Rehabilitation was held at Shediac, New Brunswick May 24 to 26. Participating were representatives at the director level from the Departments of Health, Welfare, Education and Labour of the four Atlantic Provinces. Group discussions and plenary sessions were held on the inter-related services of these departments for rehabilitation of people handicapped by disabilities.

Representatives from the Department of Public Health were: Dr. J. J. Stanton, Administrator of Health Unit Services; Dr. Clyde Marshall, Administrator of Mental Health Services; and Mr. F. G. Wellard, Co-ordinator of Rehabilitation.

## Books and Reports

### **MODERN OCCUPATIONAL MEDICINE.**

*Editors: A. J. Fleming, C. A. D'Alonzo, and J. A. Zapp. Lea and Febiger, Philadelphia. Distributed by the Macmillan Company of Canada Limited. 2nd Edition. 1960, 587 pp., \$12.00.*

This book has been written by 23 contributors, all of them employees of the du Pont Company in the U.S.A. A wide coverage of the field has been attempted. Not only are occupational diseases discussed, but there is material on organization and administration, control of the chemical and physical environments, psychiatric aspects of industrial work, and services allied to occupational medicine, such as compensation, nursing, and safety engineering. In this second edition, which comes 6 years after the first, a chapter on chest disease, an extra chapter on psychiatry, and a chapter on statistics have been added.

In covering such an extensive field in a volume of less than 600 pages, it has not been possible to treat each topic intensively. As an introduction to the subject, however, this new edition should prove as useful as its predecessor.

### **MODERN TRENDS IN OCCUPATION-**

**AL HEALTH.** *Edited by R. S. F. Schilling, M.D., M.R.C.P., D.P.H., D.I.H. Butterworth & Co. (Canada) Ltd., 1367 Danforth Ave., Toronto 6, Ont. 1960, 313 pp., \$13.50.*

This book is of great interest to those physicians and engineers engaged in the field of occupational health. It can also be read with profit by industrialists at large.

It contains much that is new, including chapters on pulmonary physiology and disease, industrial injuries, occupational cancer, radiation hazards, noise and industrial programs. Many aspects of the diseases are discussed in detail and precautions, tests and safety measures are given where necessary. The book is amply illustrated with photographs and line drawings. It expresses authoritative opinions on many topics of present interest, the references at the end of each chapter are particularly useful, and the index is adequate.

**WASTE TREATMENT.** *Edited by Peter C. G. Isaac, B.Sc.(Eng.). Pergamon Press, New York 22. 1960, 177 pp., \$15.00.*

This is a report of the proceedings of the second symposium on the treatment of waste waters held in September 1959 at the University of Durham, England, which dealt with two aspects of waste treatment: the theory and practice of biological treatment and the disposal of solids removed from liquid waste. There were 21 papers presented for discussion at the symposium. These have been edited by Prof. Peter C. G. Isaac, senior lecturer in public health engineering, King's College, Newcastle. Following an introductory section of four papers are: Biological Treatment Practice (5 papers), Sampling and Analyses (4 papers), Sludge Treatment (4 papers), Waste Treatment: Particular Industries (3 papers), Reclamation (1 paper). The contributors of the 21 papers are well known authorities in engineering and chemistry. The treatment of wastes is becoming a serious responsibility of municipalities and is of immediate concern to their health departments. This volume is an important contribution to this subject.

**MEDICAL AND DENTAL ASPECTS OF FLUORIDATION.** *W. A. Cannell, M.R.C.S., L.R.C.P., D.P.H., L.D.S., R.C.S. H. K. Lewis & Co. Ltd., London W.C.1, England. 1960, 125 pp., 15s. net.*

The author, a clinician with a research interest, has presented the medical and dental aspects of fluoridation in this small volume. Chapters include the history of fluoridation, influences of nutrition on teeth, influences of civilization on nutrition, fluoride in nutrition, physiology of fluoride, materia medica and pharmacology of fluoride, the calcification of skeletal and dental tissues, enamel, dentine, cementum, and public health aspects of fluoridation. Medical officers of health and dental officers will find much material of value to them in this comprehensive yet concise presentation.

**RADIOACTIVITY IN MAN.** Edited by George R. Meneely, M.D. Charles C. Thomas, 301 East Lawrence Ave., Springfield, Ill., U.S.A. 1961, 491 pp., \$16.50.

This book contains papers given at a symposium recently held at the Vanderbilt University School of Medicine. Each chapter contains a contribution on "Radioactivity in Man" written by a well-known authority and constitutes a comprehensive presentation of present knowledge of principles and techniques of low level whole-body gamma ray spectrometry. Consideration is also given to the implications of the radiological, medical, sociological and legal problems arising from the small, but increasing, burden of radioactivity in human beings.

The symposium contains thirty-five papers on all aspects of radioactivity in man, including apparatus, methods and their practical application in the assessment of levels of human radioactivity. The distribution of the body burden of radioactivity is discussed as well as neoplasia arising from exposure to ionizing radiation.

A number of problems have arisen in the interpretation of the results from the measurement of whole-body radiation and some of these have been resolved in the present symposium. The presentation is technical and is of great value to those engaged in the study of whole-body radioactivity. The implications arising from this symposium are of interest to medical officers of health and serve to emphasize the continuing need for the strict control and supervision of all sources of radioactivity.

Each paper is well documented with references and the book contains both name and subject indices.

**RADIATION TECHNOLOGY IN FOOD, AGRICULTURE, AND BIOLOGY.**

Norman W. Desrosier, Ph.D. and Henry M. Rosenstock, Ph.D. The Avi Publishing Company, Inc., Westport, Conn., U.S.A. 1960, 401 pp.

Dr. Desrosier is professor of food technology, Purdue University, Indiana, and Dr. Rosenstock is senior radiation scientist, William H. Johnston Laboratories Inc., Baltimore, Maryland. The purpose of this volume is to bring together pertinent information from the physical and biological sciences and to focus on some of the positive uses of atomic energy in the fields of food, agriculture, and biology.

The authors have provided the essential background information for those who are

not physicists so that they may have an understanding of the nuclear structure of atoms and molecules and radioactivity. The interaction of radiation with living organisms is discussed in seven chapters including the effects of radiation on the living cell, on plants, and on animals. Seven chapters on radiation processing technology are presented including the wholesomeness and the acceptance of irradiated treated food, the effects on packaging materials, and the technology of food irradiation. Public health officers will find this a very readable presentation which provides essential knowledge in this rapidly expanding field.

**PORTRAIT OF SOCIAL WORK.** Barbara N. Rodgers and Julia Dixon. Nuffield Provincial Hospitals Trust, Oxford University Press. 1960, 266 pp., \$4.00.

The study and this publication were made possible by a grant from the Nuffield Provincial Hospitals Trust and this volume is the report of a local survey of an industrial center of 100,000 population. The purpose of the study was to discover how many people in the town were involved in social work, how the departments and agencies where they were employed were organized and to collect facts about their age, training and past experience. Information was collected concerning what they actually did and the problems with which social workers are faced.

The authors conclude from the study that there is widespread confusion about social work, about what can and cannot be expected from social work, that those in social work need training in its principles and practice and that more thought should be given to the organization of social work and to where and how social workers are employed.

This study can be read with appreciation by all concerned with public health.

**WOMEN IN PHYSICAL EDUCATION.**

Elizabeth Halsey, Ph.D. G. P. Putnam's Sons, New York. 1961, 147 pp., \$4.50.

Dr. Halsey is professor emeritus in the State University of Iowa. This book describes the work done by women in the professions in teaching health, in teaching physical education, in physical therapy, and recreation leadership. It is a text for use in orientation courses for freshmen women majoring in these fields.

**A PRELUDE TO MEDICAL HISTORY.**

*Felix Marti-Ibañez, M.D. MD Publications, Inc., 30 East 60th St., New York 22, N.Y., U.S.A. 1961, 253, \$5.75.*

This recent MD publication by Dr. Felix Marti-Ibañez presents a fascinating introduction to the history of medicine. It reflects the author's life-long enthusiasm for his discipline and contains a scholarly account of the highways and byways through which the art and science of medicine has passed from the earliest times up to the present day. Included in the book is a selective medical and historical chronology. This is particularly useful in relating the great events in the history of medicine to the other important happenings in the time in which they occurred. There is also a useful section on recommended reading.

The index is adequate and the typography and binding of the book are excellent.

**ATLAS OF MEDICAL MYCOLOGY.**

*Emma Sadler Moss, B.S., B.M., M.D. and Albert Louis McQuown, B.S., B.M., M.D. Williams & Wilkins Co. Second Edition. 1960, 335 pp., \$11.00.*

This atlas was first published in 1953 and has been reprinted twice. In the interval there has been an increasing awareness on the part of clinicians of the widespread occurrence of diseases caused by various species of fungi. The second edition permits a revision and the inclusion of new material, new media and new stains. It is a volume of great value to the clinician and to the laboratory worker.

**SCHOOL HEALTH: Organization and Services.**

*C. V. Langton, R. L. Allen, P. Wexler. Ronald Press Co., 15 East 26 St., New York 10, N.Y., U.S.A. 1961, 441 pp., \$6.50.*

This is an introductory textbook for health education and physical education students. It contains twenty-two chapters covering the total program of school health, from the point of view of the health-service staff and the school plant to mental hygiene and teacher health. The book is clearly written and contains a great deal of valuable information. Of particular interest are the chapters on sunlight, seeing and illumination, air, heating and ventilation, the school custodian and water supply systems. Further chapters include the school health service, health and

physical education, the prevention and control of communicable disease, recreation and safety education.

The scope of "School Health, Organization and Services" is very wide, but nevertheless provides a good introduction to the subject, and as such may be read with profit by health educators and others whose primary concern lies in the promotion of school health.

**HUMAN NUTRITION AND DIETETICS.**

*Sir Stanley Davidson, B.A., M.D., F.R.C.P.(Ed.), F.R.C.P.(Lond.), M.D. (Oslo), A. P. Meiklejohn, M.A., B.Sc., D.M.(Oxon.), M.R.C.P.(Lond.), and R. Passmore, M.A., D.M.(Oxon.). Foreword by Lord Boyd Orr, D.S.O., M.C., LL.D., F.R.S. The Macmillan Company of Canada Limited, Toronto, 1959, 844 pp., \$14.25.*

The authors' intention has been to set out the whole wide subject of human nutrition in proper perspective and to bring its many aspects together into one volume. The book presents the physiological, biochemical, clinical, and public health aspects of human nutrition for all who are interested in applying modern scientific knowledge to the practical problems of human nutrition both in health and disease. Although written primarily for physicians, it will be read with appreciation by non-medical people especially those concerned with nutrition.

The book is divided into six parts. Part I gives an account of the physiology of nutrition; Part II gives a general description of the foods most commonly eaten by man; Part III describes in detail those diseases that are known to be primarily due to faulty nutrition; Part IV deals with the role of defective diets in contributing to the onset of general diseases which are not primarily nutritional in origin; Part V is concerned with nutrition in relation to public health and includes an account of the work of the Food and Agriculture Organization of the United Nations and of other international bodies; Part VI deals briefly with the modifications necessary in normal diet to meet the special circumstances of pregnancy, lactation, childhood, athletic training, and climatic extremes. As Sir John Boyd Orr states in his foreword: "This book gives in lucid language and in one volume the knowledge needed for the application of recent research in nutrition; hence it can be strongly recommended."



